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Master Plan 2023

COLLIE AIRFIELD

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ACKNOWLEDGEMENT OF COUNTRY

Collie is a part of the *Gnaala Karla Booja* region. We recognise and acknowledge the **Noongar people** as the traditional custodians of this land and recognise their elders, past, present and emerging.

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EXECUTIVE SUMMARY

Collie Airfield (YCOI) is an uncertified aerodrome located just to the east of the town of Collie in Western Australia.

The airfield facilitates aeromedical and water bombing aircraft operations as well as private, recreational and flight training aircraft. A local aero club is based at the airfield.

The Shire of Collie has also been approached by potential investors looking to establish flight training, electric aircraft manufacturing, surveillance services and remote monitoring at the aerodrome.

The Shire of Collie has developed a Master Plan for Collie Airfield that identifies and sets out the necessary steps to develop opportunities that will diversify the economy, create employment, generate revenue, enhance tourism initiatives, and broaden services and leverage existing investment at the Collie Airfield.

Plan purpose

The purpose of the Master Plan is to

- Facilitate the progressive development of the airfield
- Inform decision-making on new works
- Identify options and opportunities for investment – enabling the introduction of commercial activity
- Facilitate increased levels of service appropriate to the role and function of the Collie Airfield
- Optimise aviation opportunities/initiatives.

Plan development

The Master Plan was developed according to the methodology recommended in the Australian Airports Association Regional Airport Master Planning Guideline. The methodology involved a series of coordinated and inter-dependent stages that ensured the plan was thoroughly considered and informed:

- Stage 1 – Situation Analysis
- Stage 2: Future Direction
- Stage 3: Strategy Development
- Stage 4: Implementation.

Stakeholders were consulted throughout the process to ensure that the scope of issues, trends and business development opportunities for Collie Airfield were thoroughly understood and considered.

Plan provision

The Master Plan provides for the progressive development of Collie Airfield over three broad time frames, which are aspirational only and subject to funding availability, market demand and detailed design process:

1. Initial Development (0-5 years) – The development elements that can realistically be implemented in the short term within the existing site or with minimal impact on the external environment.



2. Certification and Expansion Stage 1 (5-10 years) – A significant expansion of the airfield and facilities suitable for the issue of an aerodrome certificate under Civil Aviation Safety Regulations (1998) Part 139, introduction of instrument approaches and development of the site to enable a variety of commercial uses. Certification is a pre-requisite for the implementation of instrument flight procedures at an aerodrome.



3. Future Expansion Stage 2 (10+ years) – expanded hangar and commercial precincts – demand driven development.



These stages and suggested time frames show a logical progression in development that could take place for planning purposes. Actual development and time frames depend on demand and the policies adopted by the Shire of Collie to promote airport growth.

Plan use

The Master Plan will be used to:

- Inform progressive decision-making in line with long-term intentions for the airfield
- Ensure opportunities are optimised (not compromised – such as by developing infrastructure in the wrong location)
- Assist prospective investors assess opportunities to locate operations at Collie Airfield.

Next steps

The next steps, following adoption of the Master Plan, are to:

- Prepare detailed plans and cost estimates for the Initial Development works, secure the necessary funding and plan for their implementation
- Evaluate in more detail the feasibility of progressively developing the site to the north, with specific attention to environmental impacts and securing land tenure.

1. PLANNING CONTEXT

1.1. Background

Collie Airfield (YCOI) is an uncertified aerodrome located just to the east of the town of Collie in Western Australia.

The airfield facilitates aeromedical and water bombing aircraft operations as well as private, recreational and flight training aircraft. A local aero club is based at the airfield.

The Shire of Collie has also been approached by potential investors looking to establish flight training, electric aircraft manufacturing, surveillance services and remote monitoring at the aerodrome.

The image at Figure 1 indicates the location of the airfield in relation to the town of Collie (source: Google Earth – September 2023 imagery).

1.2. Strategic intent

The Master Plan is intended to establish the framework for future development of the aerodrome (including airside and landside areas). It will provide guidance to the Shire of Collie on the potential activation and commercialisation of the airfield.

The Master Plan will be used to pave the way for further, more detailed investigations, planning and investment, including the preparation of a Strategic Airport Asset and Financial Management Plan.

The Approved Project Description from the grant funding agreement specifies the Master Plan as:

A Shire of Collie project to identify and set out the necessary steps to develop opportunities that will diversify the economy, create employment, generate revenue, enhance tourism initiatives, and broaden services and leverage existing investment at the Collie aerodrome.



Figure 1 Location map

1.3. Scope and Limitations

The scope of work is to prepare a Master Plan for Collie Airfield in accordance with the guidance provided in the Australian Airports Association Regional Airport Master Planning Guideline, that explores the potential for activation and commercialisation of the site through identifying and assessing:

- aviation and tourism related investment opportunities, flight training facility operations opportunities and aviation related manufacturing and service opportunities
- opportunities to enhance visitation and visitor services to the region and/or a firefighting surveillance base
- opportunities for electric airport design, development and manufacture and remote air surveillance monitoring operations
- potential for increased service levels to industry, tourism activity and community
- potential new industries and recreational activity opportunities
- intermodal freight viability including facility provision
- development areas, servicing requirements and arrangements for land development (land development capability and land use plan) including areas for potential new industry and industry sectors
- recommendations for land tenure rationalisation based on the dot point above
- recommendations for airport certification, regulation and management methodology.

The following key activities were conducted during the course of the study:

- Inception meeting and site orientation
- Stakeholder consultation activities including during the site visit
- Consolidation of stakeholder feedback
- Preparation of concept plans for client endorsement
- Presentation of the Vision to the Shire's executive leadership team
- Confirmation of the Vision at a meeting of Council on 10 October 2023
- Preparation of draft Master Plan including drawings, plans
- Final stakeholder consultation including review of draft Master Plan
- Preparation of final Master Plan for client acceptance.

1.4. Site description

Collie Airfield (YCOI) is an uncertified aerodrome with a sealed runway 10/28 that is 1165 m long and 14 m wide.

The primary function of the airfield is to support aerial firefighting and aeromedical emergency services operations.

It also supports a range of other general aviation activities including private, flying training and non-scheduled air transport (charter) operations.

The airfield is located within a heavily wooded area, with the runway oriented roughly east-west.

An overview of the airfield is provided at Figure 2 (source: PlanWA).



Figure 2 Site overview

On the airside, adjacent to a large, sealed parking apron, the Collie Aero Club has a hangar and operations building, and DBCA has water and retardant tanks along with a small container for support equipment. There is also a small patient transfer facility for the RFDS. These facilities are shown in Figure 3.



Figure 3 Airside facilities

1.5. Regional characteristics

The Shire of Collie is a medium sized local authority, with a total revenue of approximately \$9.1M. The Shire covers an area of 1,685 sq km, set amongst 78% State Forest and includes Wellington Dam, a water catchment of state significance.

Population

The Shire of Collie LGA had a population of 8,812 at the time of the 2021 census. The Shire's population was 7,587 at the time of the 2016 census and 7,961 at the 2011 census.

Economy

The Collie Investment prospectus notes that Collie is an established industrial hub, home to a diverse range of industries including energy generation, mining, manufacturing and primary industries. Traditionally a coal mining and energy generation hub, Collie's local economy is diversifying, with increasing investment in clean energy, mineral processing, manufacturing and agribusiness. Tourism is also growing in the region, which boasts impressive destinations such as Wellington National Park, Lake Kepwari and world-class mountain bike trails.

General Aviation is a critical aviation sector contributing to the national economy, job creation and the well-being of communities.

1.6. Climate and meteorology

Collie experiences hot summers and chilly frosty winters.

Bureau of Meteorology statistics drawn from the weather station at Collie township indicate that the mean maximum temperature ranges from 30.5°C in January to 15.5°C in July.

The mean annual rainfall for the region is 924 mm and it experiences an average of 29.9 days with temperatures ≥35 °C per year.

Wind roses of average wind speed and direction for 9 am and 3 pm at the Collie Township weather station are provided at Figure 4.

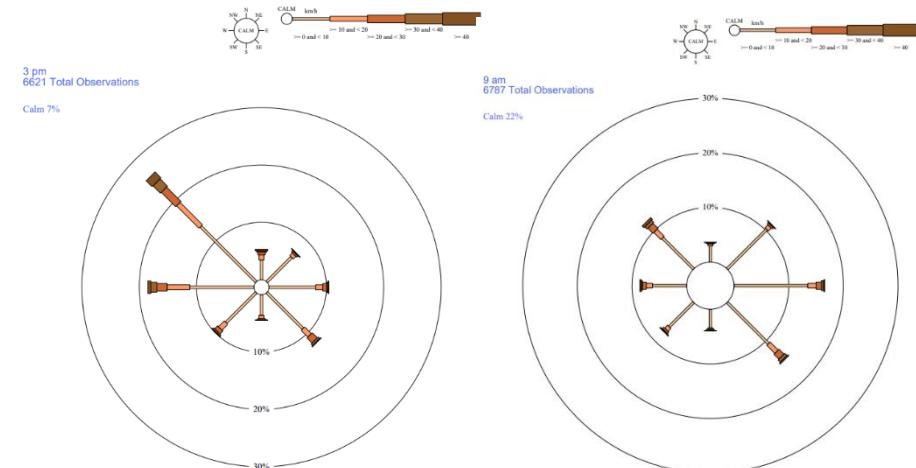


Figure 4 9 am and 3 pm wind roses

1.7. Strategic alignment

Collie generates most of the electricity on the South West Interconnected System (SWIS) with its economy highly reliant on the coal mining and energy generation sectors.

The Collie-Bunbury region is experiencing significant economic structure changes, particularly with the global trend towards renewable energy and decarbonisation.

The Western Australian Government is committed to working with the community and industry to deliver a Just Transition for Collie.

The Western Australian Government prepared an Economic Development Action Plan for the Collie and Bunbury Regions – 2020-2026. The Plan nominated four strategic focus areas:

1. Facilitating industry opportunities
2. Providing incentives for growth
3. Ensuring infrastructure is industry-ready
4. Developing the future workforce.

While the Plan doesn't specifically mention the Collie Airfield, the strategic focus areas and target outcomes are informative of the overall development plan herein.

Collie's Just Transition Plan – December 2020 is a key deliverable of the Economic Development Action Plan for the Collie and Bunbury Regions 2020-2026, and will focus on a five-year period from 2021-2025, with the primary goal of supporting affected workers and communities in the transition from emissions-intensive industries in a coordinated way.

The Welcome to Collie Your Investment Destination, October 2021 consolidated these two plans into a concise prospectus for potential investors.

1.8. Shire of Collie Local Planning Strategy

The Shire of Collie Local Planning Strategy, dated 17 April 2020, references the Collie Airfield within an analysis of the Transportation Network at section 13, extracted as follows.

Airstrip

The Collie airstrip is located towards the eastern edge of town and consists of a single runway only. The airstrip is not Civil Aviation Safety Authority (CASA) registered or certified therefore only planes with no more than 30 passenger seats catering to private charter flights only can use the facility. It is also used by the Collie Aeroclub, Royal Flying Doctor and fire fighter aircraft. There is currently no identified buffer between the airstrip and nearby rural residential land uses. There is no current demand for the airstrip to be expanded or upgraded to cater for an increased number or type of aircraft. Any potential future expansion is limited by sensitive land uses (i.e. rural residential) to the west and the Collie Coal Basin. Therefore, a buffer should be recognised to help protect the airstrip into the future and to avoid land use conflicts.

At 13.2 Planning implications, the following recommendation is made:

The current airstrip should be protected from future potential incompatible land uses through establishment of an appropriate special control area;

The proposed Planning response, at 13.2, Action 84, is to:

Introduce a special control area in LPS 6 and include appropriate provisions.

1.9. Shire of Collie Local Planning Scheme

The Shire of Collie Local Planning Scheme No 6, Gazetted 20 December 2021, established Special Control Area 11 – Collie Airfield. Details are as provided in Table 1.

Table 1 Shire of Collie SCA11 - Collie Airfield

Purpose	Objectives	Additional Provisions
To designate land surrounding the waste management facility where sensitive land uses will not be permitted and to protect the airfield from encroachment.	<ul style="list-style-type: none"> a) To ensure that adequate separation distances are maintained between the airfield and residential or other sensitive land uses; and b) To minimise impacts on residential and other sensitive uses from emissions such as noise, vibration and light from the airfield. c) To protect the airfield from encroachment by incompatible land uses that would adversely impact on the efficient operations of the airfield. 	<ol style="list-style-type: none"> 1. Despite any other provision of the Scheme planning approval is required for all use and development Within the SCA except for: <ul style="list-style-type: none"> i. the land use of Agriculture – extensive; or ii. land uses that are ancillary to the predominant land use; or iii. development that is considered by the local government to be minor in nature and will not impinge on the operation of the waste management facility. 2. In considering whether a proposed use is 'compatible' the local government may refer the application to the Civil Aviation Safety Authority. 3. Where land is proposed to be subdivided, the local government shall recommend that a Section 70A notification be placed on title advising prospective purchases of the potential for the land to be affected by noise due to the proximity to the airfield.

An extract from Local Planning Scheme Map No. 9 of 16, showing the extent of Special Control Area 11 (SCA11) – Infrastructure (Airfield), is provided at Figure 5.



Figure 5 Collie Airfield SCA11.

1.10. State Planning Policy

The Western Australian Planning Commission (Commission) prepared and adopted the State Planning Strategy 2050 (2014) pursuant to Section 14(b)(i) of the Planning and Development Act (2005). It sets out the key principles relating to environment, community, economy, infrastructure, regional development and governance which should guide the way in which future planning decisions are made.

State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) directs how land use should address bushfire risk management in Western Australia.

An extract of the overlay relevant to Collie Airfield is provided at Figure 6.

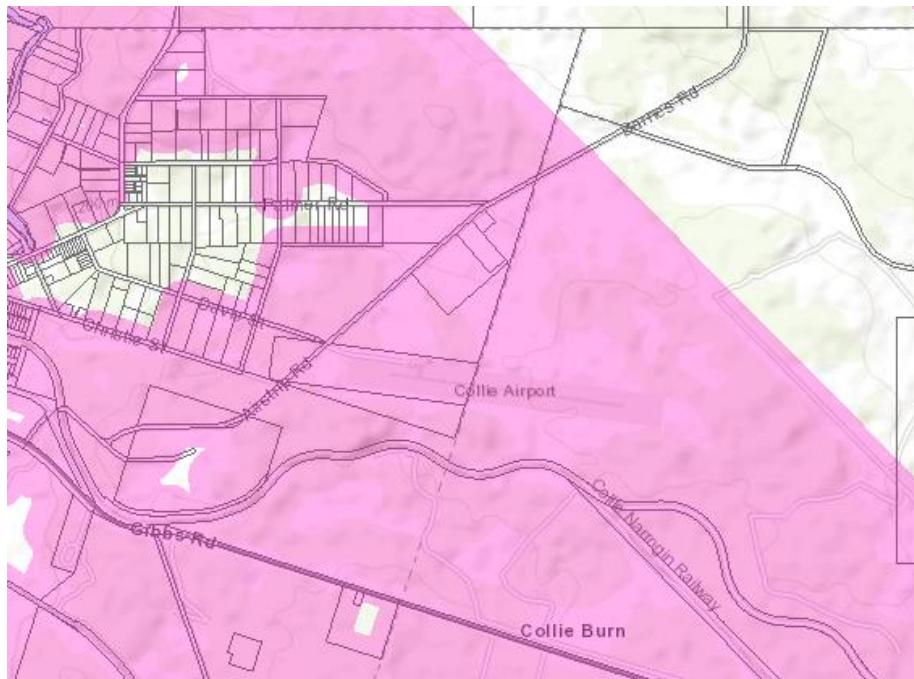


Figure 6 SPP 3.7 Planning in Bushfire Prone Areas

1.11. DBCA Legislated Tenure

The eastern half of the airfield is contained within DBCA legislated lands.

An overlay showing the extent of the legislated lands, extracted from NationalMap, is provided at Figure 7.

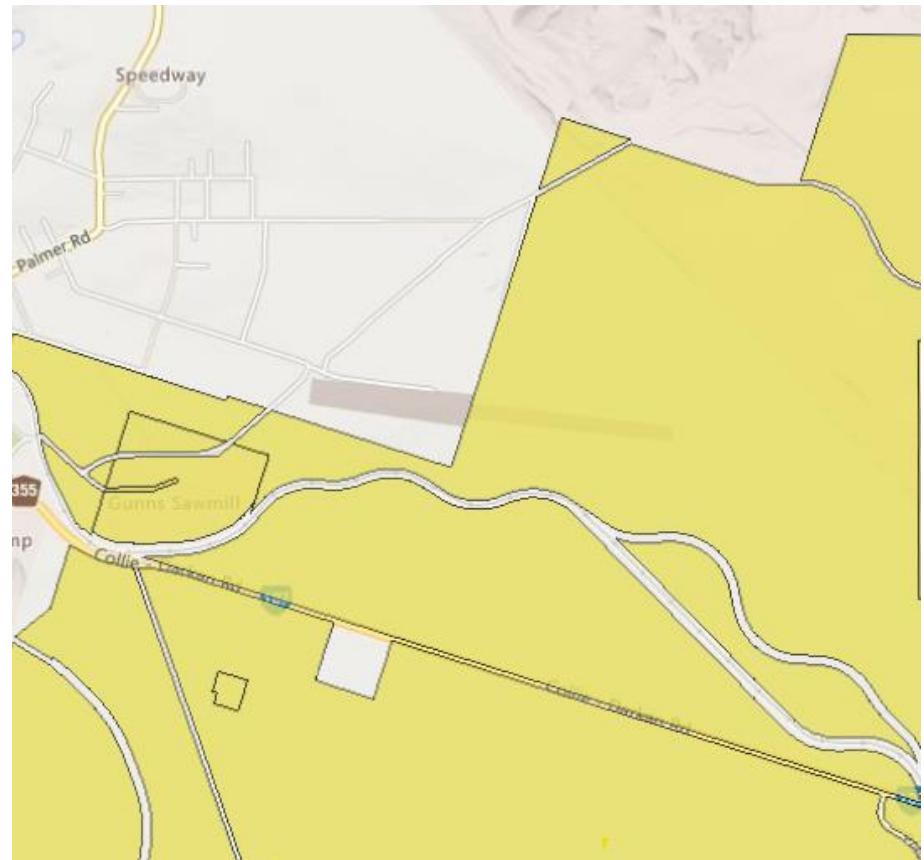


Figure 7 DBCA Legislated Tenure

1.12. Native vegetation

The airfield is surrounded by native vegetation. An overlay showing the extent of native vegetation around the airfield, extracted from NationalMap, is provided at Figure 8.



Figure 8 Native vegetation

1.13. Matters of National Environmental Significance

A search of the Matters of National Environmental Significance (MNES) online mapping resource identified 12 Listed Threatened Species within the area of interest indicated by the green segments in Figure 9, as per the details in Table 2.

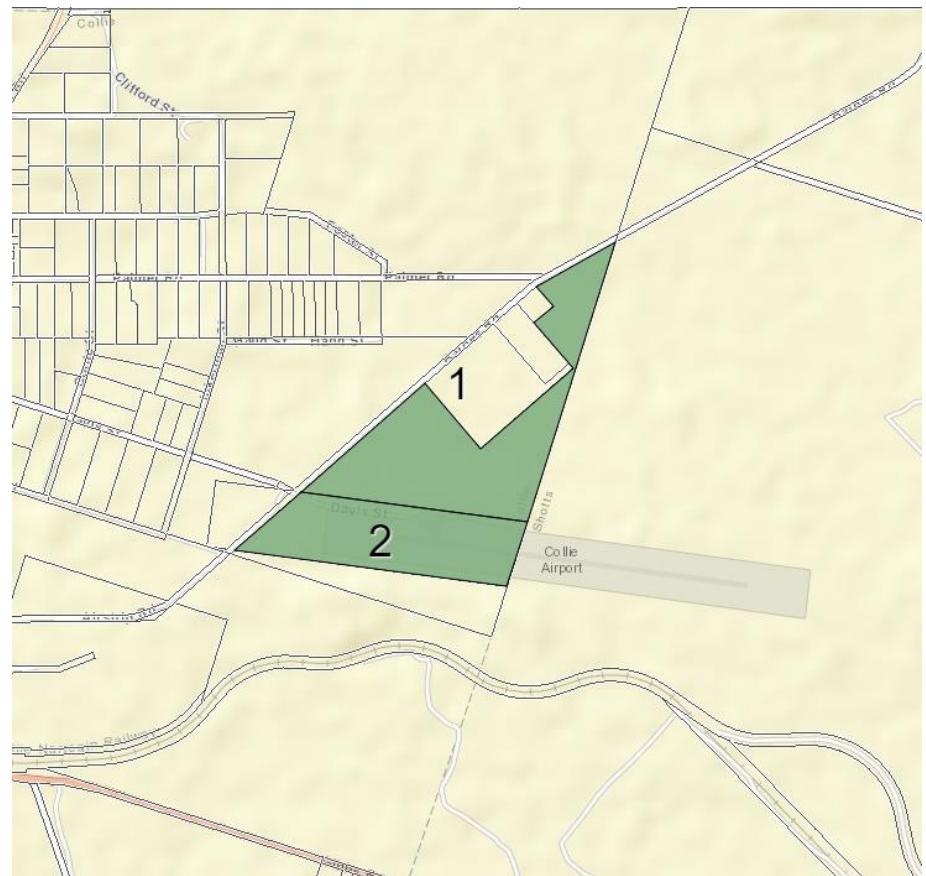


Figure 9 MNES area of interest

Table 2 Listed Threatened Species

Common Name	Class	Simple Presence	Presence Text	Threatened Category
Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit	Mammal	May	Species or species habitat may occur within area	Critically Endangered
Curlew Sandpiper	Bird	May	Species or species habitat may occur within area	Critically Endangered
Collie Spider Orchid	Plant	Likely	Species or species habitat likely to occur within area	Endangered
Australasian Bittern	Bird	May	Species or species habitat may occur within area	Endangered
Numbat	Mammal	May	Species or species habitat may occur within area	Endangered
Baudin's Cockatoo, Baudin's Black-Cockatoo, Long-billed Black-cockatoo	Bird	Likely	Breeding likely to occur within area	Endangered (listed as <i>Calyptorhynchus baudinii</i>)
Carnaby's Black Cockatoo, Short-billed Black-cockatoo	Bird	Likely	Breeding likely to occur within area	Endangered (listed as <i>Calyptorhynchus latirostris</i>)

Common Name	Class	Simple Presence	Presence Text	Threatened Category
Malleefowl	Bird	May	Species or species habitat may occur within area	Vulnerable
Chuditch, Western Quoll	Mammal	Likely	Species or species habitat likely to occur within area	Vulnerable
Dwarf Bee-orchid	Plant	Likely	Species or species habitat likely to occur within area	Vulnerable
Forest Red-tailed Black-Cockatoo, Karrak	Bird	Known	Species or species habitat known to occur within area	Vulnerable

1.14. Aviation legislative framework

Collie Airfield is not currently certified but is intended within the master planning strategy to achieve certification. Therefore, current and future operations at Collie Airfield are regulated according to the following requirements:

1.14.1. Civil Aviation Safety Regulations 1998

Civil Aviation Safety Regulation 1998 (CASR) Part 139—Aerodromes describes the requirements for aerodromes used in air transport operations.

1.14.2. Manual of Standards Part 139—Aerodromes

Manual of Standards Part 139—Aerodromes (MOS 139) sets out the standards and operating procedures for certified and certain other aerodromes used in air transport operations.

1.14.3. Aviation Transport Security Act 2004

The Aviation Transport Security Act 2004 (amended and in force on 23 June 2021) sets out the statutory framework that safeguards Australia's essential aviation services.

1.14.4. Aviation Transport Security Regulations 2005

The Aviation Transport Security Regulations 2005 put into effect the requirements set out in the Act.

1.14.5. International Civil Aviation Organisation (ICAO) Annex 14 - Aerodromes, Volume 1 Aerodrome Design and Operations

This Annex contains Standards and Recommended Practices (specifications) that prescribe the physical characteristics and obstacle limitation surfaces to be provided for at aerodromes, and certain facilities and technical services normally provided at an aerodrome. It also contains specifications dealing with obstacles outside those limitation surfaces.

1.15. National Airports Safeguarding Framework

The Commonwealth Government has an interest in better planning and integrated development on and around airports and to lessen the adverse effects of aviation activity on the environment and communities. While not a planning authority, it provides guidance on broader issues such as noise around airports that can be used by statutory authorities to achieve the stated objectives. The National Airports Safeguarding Advisory Group (NASAG) has produced National Airports Safeguarding Framework (NASF) to advance this agenda. The Framework should also be taken into consideration when designing development on and in the vicinity of the airport.

1.16. Current aircraft operations

The Royal Flying Doctor Service operates PC12 and PC24 (Figure 10) fixed wing and EC145 (Figure 11) rotary wing aircraft (images courtesy RFDS).



Figure 10 RFDS PC12 and PC24 aircraft



Figure 11 RFDS EC145 helicopter

DBCA operates the American Champion Scout, based at Bunbury Airport, (Figure 12) for fire spotting operations and contracts operators of aerial firefighting aircraft such as the Air Tractor series (Figure 13) (images courtesy DBCA).



Figure 12 DBCA American Champion Scout



Figure 13 Air Tractor aerial firefighting aircraft

Corporate and commercial operations would be conducted by aircraft up to the size of the King Air 200 (Figure 14, image courtesy WA Government) and Cessna 208 fixed wing aircraft, as well as piston and turbine powered helicopters.



Figure 14 King Air 200

Flying training operations would include small piston and electric powered aircraft such as the Cessna series (Figure 15, image courtesy Bunbury Flying School) and Pipistrel Electro Aero (Figure 16, image courtesy Australian Aviation).



Figure 15 Cessna 172



Figure 16 Pipistrel Electro Aero

2. STAKEHOLDER CONSULTATION

Various stakeholders were considered and/or consulted to properly understand the scope of issues, trends and business development opportunities for Collie Airfield.

2.1. Stakeholder Engagement Plan

Engagement activities conducted during the consultation period included:

- face to face interviews
- telephone/online interviews
- email exchanges
- Council meetings

2.2. Meeting Schedule

Aviation Projects conducted face to face meetings at Collie and Collie Airfield on 09 March 2023, and additionally engaged in telephone and online meetings with other interested parties.

The following stakeholders were engaged either through face-to-face meeting, telephone interview or email correspondence:

- Shire staff
- Shire President
- Collie Aero Club
- Department of Biodiversity, Conservation and Attractions (DBCA)
- Department of Fire and Emergency Services (DFES)
- Royal Flying Doctor Service (RFDS)

- Department of Jobs, Tourism, Science and Innovation
- South West Development Commission (SWDC)
- Australia's South West
- Traaverse
- VSTAR Powered Lift
- Travis Jaarola
- Bunbury Airport
- Busselton Airport

2.3. Results of stakeholder consultation

Feedback about the airfield facilities and operations in general terms is noted as follows:

- The facility is adequate for the purpose of emergency services operations (aerial firefighting, aeromedical) and under-utilised for private and commercial activities
- There was not a great deal of awareness of the facility by non-operational stakeholders
- The lack of fuel (Jet A1, Avgas, Mogas) available for purchase prevents some discretionary operations
- DBCA suggested that having Jet A1 fuel would be nice to have for DBCA operations, but not essential
- Provision of additional sites for private hangars might be attractive given the shortage of supply at Bunbury Airport.

2.4. Endorsement of Vision

The Shire of Collie Council endorsed the Vision as documented herein at the Ordinary Meeting of Council held on 10 October 2023.

2.5. Feedback on Draft Master Plan

Incorporate feedback following public exhibition.

3. SWOT ANALYSIS

A Strengths Weaknesses Opportunities and Threats (SWOT) analysis has been used to identify significant areas for consideration in relation to Collie Airfield and its support of the Shire of Collie's strategic objectives, as detailed in Table 3 and Table 4.

Table 3 Collie Airfield SWOT analysis – Strengths and Weaknesses

Strengths	Weaknesses
<ul style="list-style-type: none"> • Valuable community resilience asset • Some demand for facilities from aviation stakeholders • Convenient airspace access • Tourism associated with natural assets • Low number of aircraft movements • Community recognition of established airfield and associated flight paths • Vicinity to town resources (4 km to town centre) 	<ul style="list-style-type: none"> • Lack of hangar space to meet potential demand • Generally poor pavement condition • Non-compliant runway and taxiway dimensions • Runway longitudinal slope >2% ch 960-1000 • No instrument approach procedures • Not certified • Limited night time capability - no taxiway lighting, no approach lighting, low intensity runway lighting only • No Jet A1, Avgas or Mogas fuel supply • No services other than electricity • Minimal sealed parking areas • Poor signage • SoC does not have freehold ownership over whole site • Proximity of residential areas to the west (noise) • Limited landside road access and parking • Limited passenger facilities • Limited organisational capability for increased scope and scale of operations • Lack of marketing

Table 4 Collie Airfield SWOT analysis – Opportunities and Threats

<i>Opportunities</i>	<i>Threats</i>
<ul style="list-style-type: none"> • Well positioned to support Just Transition – new manufacturing businesses and associated investment • Bunbury Airport is operating close to capacity and needs to expand footprint in environmentally sensitive bushland to provide additional hangars • Strategic positioning may attract more users 	<ul style="list-style-type: none"> • Land tenure • Environmental constraints • Bush Fire • Proximity to residential areas

4. EXISTING AERODROME FACILITIES

4.1. Runway and taxiway infrastructure

Runway 10/28: 1165 m x 14 m sealed.

The runway slopes down to the west, with a small section between ch 960-1000 towards the eastern end that exceeds 2%.

Refer to the extract of the longitudinal section at Figure 17, with the highlighted section indicating a slope of 2.1%.

A sealed taxiway provides access to the parking apron at the western end of the airport.

COLLIE AIRSTRIP 2011 RECONSTRUCTION
LONGITUDINAL SECTIONS

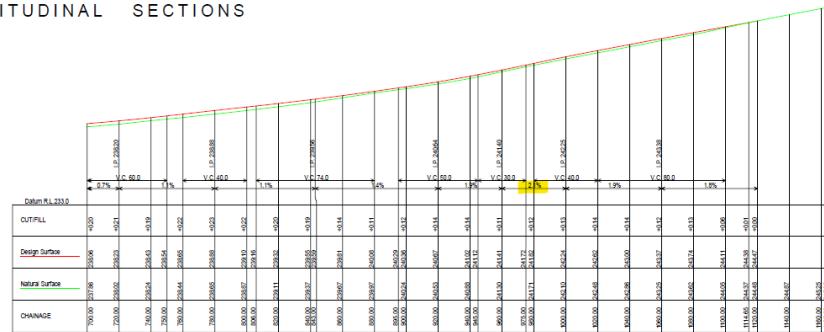


Figure 17 Collie Airfield runway longitudinal section ch 960-1000

An image of runway 10, looking east is provided at Figure 18.



Figure 18 Runway 10

An image of runway 28, looking west is provided at Figure 19.



Figure 19 Runway 28

4.2. Parking apron

The sealed apron provides parking for several aircraft. It has a cable tie down on the runway side.

Refer to the image at Figure 20.



Figure 20 Parking apron

4.3. Hangar facilities

Hangar facilities are available for maintenance, repair and overhaul (MRO) operations, flying training organisations and private aircraft in the general aviation precinct.

The Aero Club has a hangar on site. The hangar has an unsealed floor and access to the sealed parking apron.



Figure 21 Collie Aero Club hangar

4.4. Aerodrome lighting

The aerodrome ground lighting system has not been commissioned by CASA and is only suitable for emergency services operations.

An image of the runway lights at the eastern end is provided at Figure 22.



Figure 22 Runway end lights - threshold 28

4.5. Fuel

There is no fuel available for purchase on site.

4.6. Ground support equipment

There is no dedicated ground support equipment available other than as required by individual users.

4.7. Navigation and approach aids

Collie Airfield RWY 10/28 is a non-instrument runway. There are no navigation or approach aids other than wind direction indicators.

An image of the wind direction indicator at the eastern end of the runway is provided at Figure 23.



Figure 23 Eastern wind direction indicator

4.8. Landside road and civil infrastructure

Collie Airfield is served by landside road and civil infrastructure that is adequate for its current scope of operations.

4.9. Aerodrome rescue and firefighting services

Collie Airfield does not have an aerodrome rescue and firefighting service (ARFFS) and is not required to have one.

4.10. Air traffic control and airspace

Collie Airfield is located outside controlled airspace and does not have an air traffic control tower service. Figure 24 refers (source: Airservices Australia).

The surrounding airspace is appropriate for current operations and the low number of airspace users presents an attractive opportunity for a more intensive use such as flight training or advanced air mobility test and demonstration flight operations.

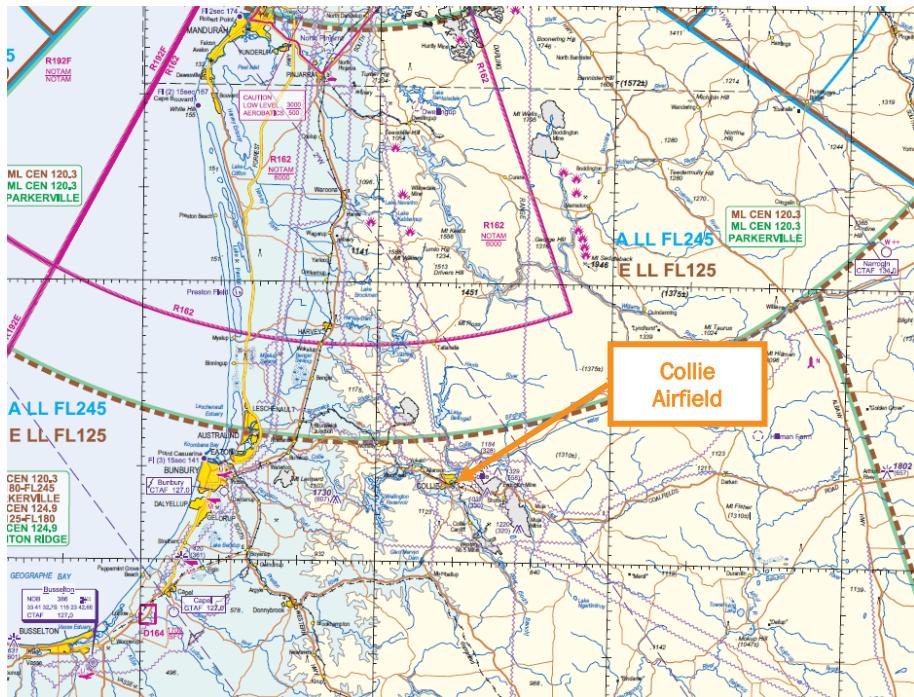


Figure 24 Local surrounding airspace

4.11. Transport security

Collie Airfield is not a security-controlled airport. Basic aerodrome security and wildlife fencing with locked gate access for users is provided.

4.12. Ground transport systems

External network:

The external road network is comprised of a sealed entrance road (Davis St) with connection through to alternative routes via a gravel-surfaced Barnes Rd to the north and Airstrip Rd to the south. Refer to the image at Figure 25 (Source: Google Maps).

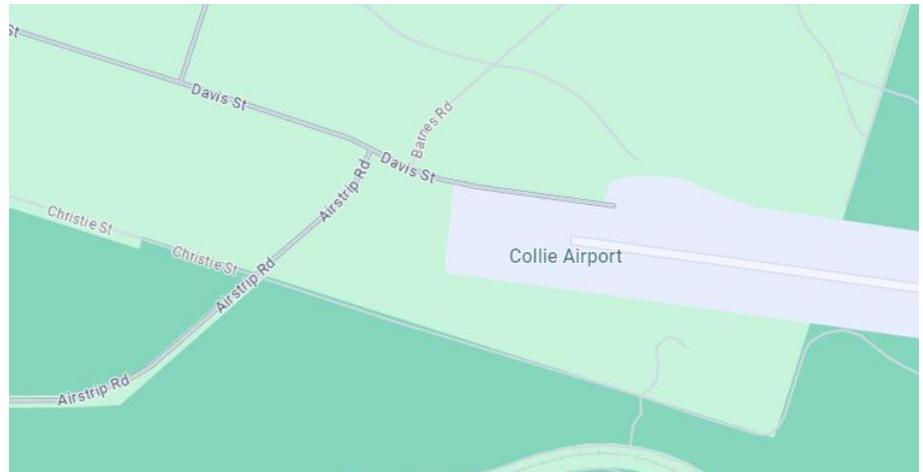


Figure 25 External road network

An image of the entrance to the airfield is provided at Figure 26 (Source: Shire of Collie).



Figure 26 External entrance

Internal network:

There are no internal roads.

Airside access:

Airside access is considered adequate.

Rental car parking demand:

There is currently no rental car service provided in Collie.

Buses:

There is no direct bus service access to Collie Airfield.

Taxis:

Local taxi services are available to and from the Collie Airfield.

Public car parking:

Unsealed car parking is provided at the entrance to the airfield. Additional parking will likely be needed according to expected demand over time.

4.13. Utilities and civil infrastructure

Water:

There is no potable water supply.

Electricity:

Grid connection provides adequate electricity for the current operation. The addition of new developments will require reassessment.

Sewer/septic:

Wastewater treatment is via individual septic systems.

Communications:

Telephone service is available via the mobile network.

Mobile phone coverage is good.

Stormwater:

Stormwater management on site is considered adequate for the current use.

Perimeter fencing:

The perimeter fencing is considered suitable for its purpose. Wildlife sometimes finds entry points.

5. DEMAND

5.1. Traffic Model

There are currently no scheduled air transport passenger services at Collie Airfield.

Tourist and business related non-scheduled (charter) services operate on an ad hoc basis.

There is some scope for expansion of these types of services particularly if Jet A1 fuel and larger aircraft parking facilities are provided.

However, given the proximity to Busselton Margaret River and Perth airports, the demand for scheduled air transport passenger services and facilities is not envisaged within the master planning horizon.

The disposition of air traffic at Collie Airfield currently consists of:

- General aviation commercial and private piston single and twin-engine aircraft
- Recreational Aviation Australia Light Sport Aircraft
- Commercial turboprop aircraft providing non-scheduled air transport services
- Commercial and private helicopters
- Emergency services fixed and rotary wing aircraft.

5.2. Current aircraft movement

Limited historic aircraft movement data is available for Collie Airfield.

Anecdotally there are 5-10 movements per month.

The PC24, Beech King Air 350 and 200 series, Cessna 208 Caravan, PC12 and Air Tractor 802 are the largest aircraft currently using the airfield.

5.3. Forecast aircraft movements demand

Aircraft movements at Collie Airfield are relatively unconstrained by the available infrastructure.

Future development of private or commercial hangar space to facilitate private aircraft storage and flight training aircraft maintenance would be expected to enable an increase of aerodrome traffic.

The provision of aircraft fuel (Jet A1, Avgas, Mogas) would likely make the airfield more attractive to itinerant users conducting tourism or non-scheduled air transport (charter) operations.

Electric charging facilities would make the airfield more attractive to a small but growing group of electric-powered aircraft operators.

The development of an advanced air mobility aircraft manufacturing facility would create additional aircraft movements in support of flight testing and demonstration activities.

6. DEVELOPMENT OPTIONS

6.1. Development objectives

Following a thorough review and consideration of the various elements of the scope of work for this master plan, priorities were allocated in terms of high (green), medium (orange) and low (red), as per the summary in Table 5.

Table 5 Development Objective Priorities

<i>Development Objective</i>	<i>Priority</i>
Aviation and tourism related investment opportunities, flight training facility operations opportunities and aviation related manufacturing and service opportunities	●
Enhance visitation and visitor services to the region and/or a firefighting surveillance base	●
Electric airport design, development and manufacture and remote air surveillance monitoring operations	○
Increased service levels to industry, tourism activity and community	○
Potential new industries and recreational activity opportunities	●
Intermodal freight viability including facility provision	●
Development areas, servicing requirements and arrangements for land development (land development capability and land use plan) including areas for potential new industry and industry sectors	○
Land tenure rationalisation	○
Airport certification, regulation and management arrangements to best meet objectives for the facility	○

¹ Australia's Aerospace Industry Capability – KPMG report 2019

6.2. Flight training

The Collie Aero Club has provided flight training services in the past but is not currently active. A flight training organisation had been granted funds to set up a small flight training operation at the airfield but tragically, in early 2023, the principal was killed in an aircraft accident and the project has not progressed. There is likely scope for a small scale flight training organisation to establish an operation at the airfield in the short term.

6.3. Passenger transport services

Scheduled passenger services are not currently provided by any airline at Collie Airfield and are not considered to be a requirement within the master plan 20-year horizon.

There is the potential for increased non-scheduled passenger (charter) services associated with the various significant developments underway as part of the transition from coal mining and power generation to other advanced manufacturing and refining businesses in the region. These charter services may be conducted by fixed or rotary wing aircraft.

There is no passenger facility at the airfield, which may deter some tourists or itinerant visitors from operating to the airfield. It is suggested that a small passenger facility is constructed to accommodate itinerant visitors.

6.4. Aerospace manufacturing, maintenance, repair and overhaul

The aircraft manufacturing and repair services industry annually contributes over \$2 billion in gross value to the Australian economy and is estimated to contribute an additional \$0.9 billion of added value through linkages and flow on effects. The industry achieves annual sales revenue of \$4.8 billion, \$2 billion in merchandise exports and support over 900 registered businesses employing over 18,000 people in industry jobs and jobs that support the industry.¹

Traditional aerospace services include:

- Maintenance and repair of commercial and military aircraft
- Component repair, overhaul and manufacture
- Avionics supply, repair and upgrade
- Spare parts inventory
- Aircraft and engine sales.

Emerging services include:

- Commercial Drones
- Advanced Air Mobility (eVTOL) aircraft research and manufacture.

Demand for convenient airport operating environments and commercial hangar facilities for these businesses is high. Many larger airports with suitable airside infrastructure have the disadvantage of having limited development space and being constrained by high traffic volumes. Prohibitive leasing costs and access issues at major capital city facilities has driven a demand for suitable alternative regional locations to base small to medium aircraft manufacturing and repair businesses.

Close regional airports such as Bunbury have successfully developed commercial precincts catering to these types of businesses but have limited capacity for future expansion.

It is expected that these types of businesses will continue to grow and additional complementary businesses may potentially be attracted to operating at Collie Airfield provided suitable facilities are available.

The Master Plan addresses these requirements through the planning of suitable locations for commercial hangar precinct development.

6.5. General aviation precinct

Light general aviation aircraft movements account for the majority of the current traffic movements at Collie Airfield.

The airfield provides an option for commercial and private general aviation aircraft owners looking for somewhere to park and operate their aircraft and for recreational flying activities. Recreational Aviation Australia light sport aircraft are expected to account for a large percentage of the total aircraft movements.

Collie Airfield has an established hangar which is currently used by the Aero Club. Demand for available hangar space in the region is highly competitive, particularly at Bunbury and Busselton Margaret River Airports.

The Master Plan provides the potential for more hangar availability by planning a new commercial and hangar precinct more suitable to the larger manufacturing and commercial MRO operators who would be expected to relocate given the opportunity to establish purpose-built facilities.

6.6. Non-aviation activities

Due to limited available land and planning constraints at Collie Airfield the Master Plan does not contemplate the use of airfield facilities for any non-aviation activities.

7. VISION

The vision that has been developed through the master planning study, and endorsed by the Shire of Collie at the Ordinary Meeting of Council on 10 October 2023, is as follows:

Collie Airfield Vision

Provide an airport for the Collie community that will support aviation-related emergency services operations, enable other commercial and private aviation activities including low intensity flight training, act as an air gateway to the Collie Shire for business and tourist visitors and provide for aviation-related manufacturing and service opportunities.

Development on the airfield will:

- Comply with applicable civil aviation safety regulations and standards
- Be on land controlled by Shire of Collie
- Be resilient to natural disasters and climate change
- Have minimal impact on the environment
- Meet community expectations in respect of level of service
- Be future proofed to respond to new opportunities and technologies that will emerge over time
- Unlock broader economic development opportunities.

7.1. Development targets

In the short term, it is intended to focus on what can be achieved within the current site to enhance the airfield's utilisation, namely:

- Correct compliance issues and improve infrastructure
- Provide a simple but nice passenger facility
- Enhance the entrance statement / signage and branding
- Consider provision of Mogas and/or JetA1 fuel and electric charging points.

In the longer term, it is intended to:

- Identify opportunities to attract commercial businesses that can use current aeronautical facilities on land adjacent to the airfield
- Secure land tenure and environmental approvals over a master planned expansion site to enable certification, instrument approaches and larger scale commercial development and private hangarage.

7.2. Development concept

Three development options for the delivery of the Vision were prepared and considered.

The development options were informed in part by the protection of airspace along the sides and at the ends of the runway and for applicable separation distances between the runway, taxiway and parking aprons, according to the scope of aircraft operations.

The preference is also to constrain any development to within land that is controlled by the Shire of Collie.

The options were defined as follows:

Option 1: Code 2B development with a code 2 non-instrument runway.

This option would enable PC24 and B350 King Air operations in good weather conditions, day and night (but no instrument approach procedures).

This option was the least impactful but constrained the airfield's future capability.

Option 2: Code 2B development with code 2 non-precision instrument approach runway.

This option would enable PC24 and B350 King Air operations with an instrument approach capability during conditions of low cloud or reduced visibility.

Option 3: Code 3C development with a code 3 non-precision approach runway.

This option would enable the operation of larger aircraft such as Saab 340 and Dash 8 or reduced visibility with an instrument approach capability during conditions of low cloud or reduced visibility.

This option would require a longer, wider and stronger runway and significantly more cleared land around and at the ends of the runway outside of the existing reserve and eastern DBCA lease area. Progression of Option 3 would also mean that any interim development or enhancement of the airport would have to be located outside of the airport land (due to the widening required) or be designed to be redundant or relocatable.

The most likely future scope of operations and preferred long term development concept is to provide for a certified aerodrome supporting reference code number 2 aircraft and non-precision instrument approach procedures.

Option 2 was therefore selected as the preferred development scheme as it establishes the most realistic framework for expansion of the airfield without committing to a substantially longer and wider runway and associated buffer areas.

The major constraints associated with the 3 options, in terms of major infrastructure and associated buffers according to the design aircraft code number, are illustrated at Figure 27, Figure 28 and Figure 29.

Development concepts for the three options are provided at Figure 30, Figure 31 and Figure 32.



Figure 27 Code 2 non-instrument runway constraints

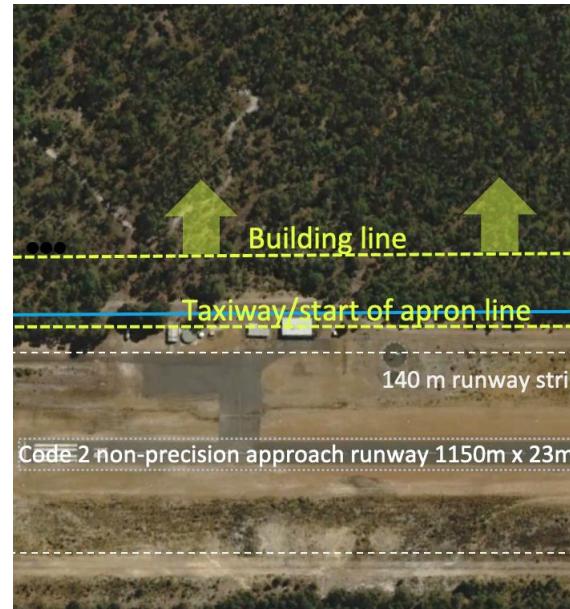


Figure 28 Code 2 non-precision approach runway constraints

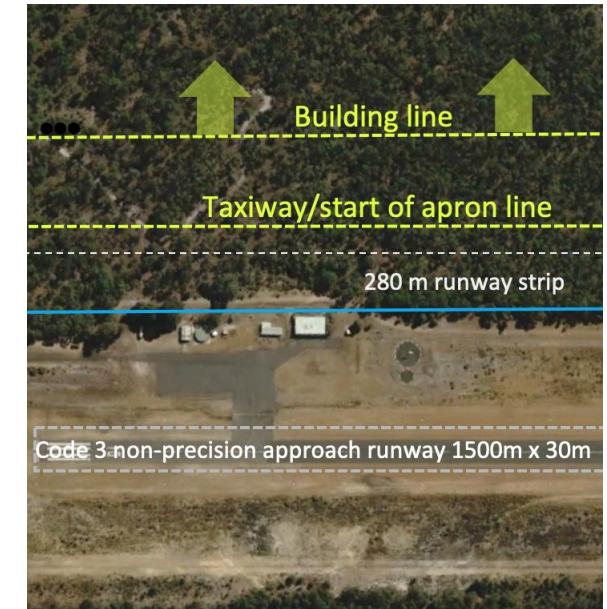


Figure 29 Code 3 non-precision approach runway constraints

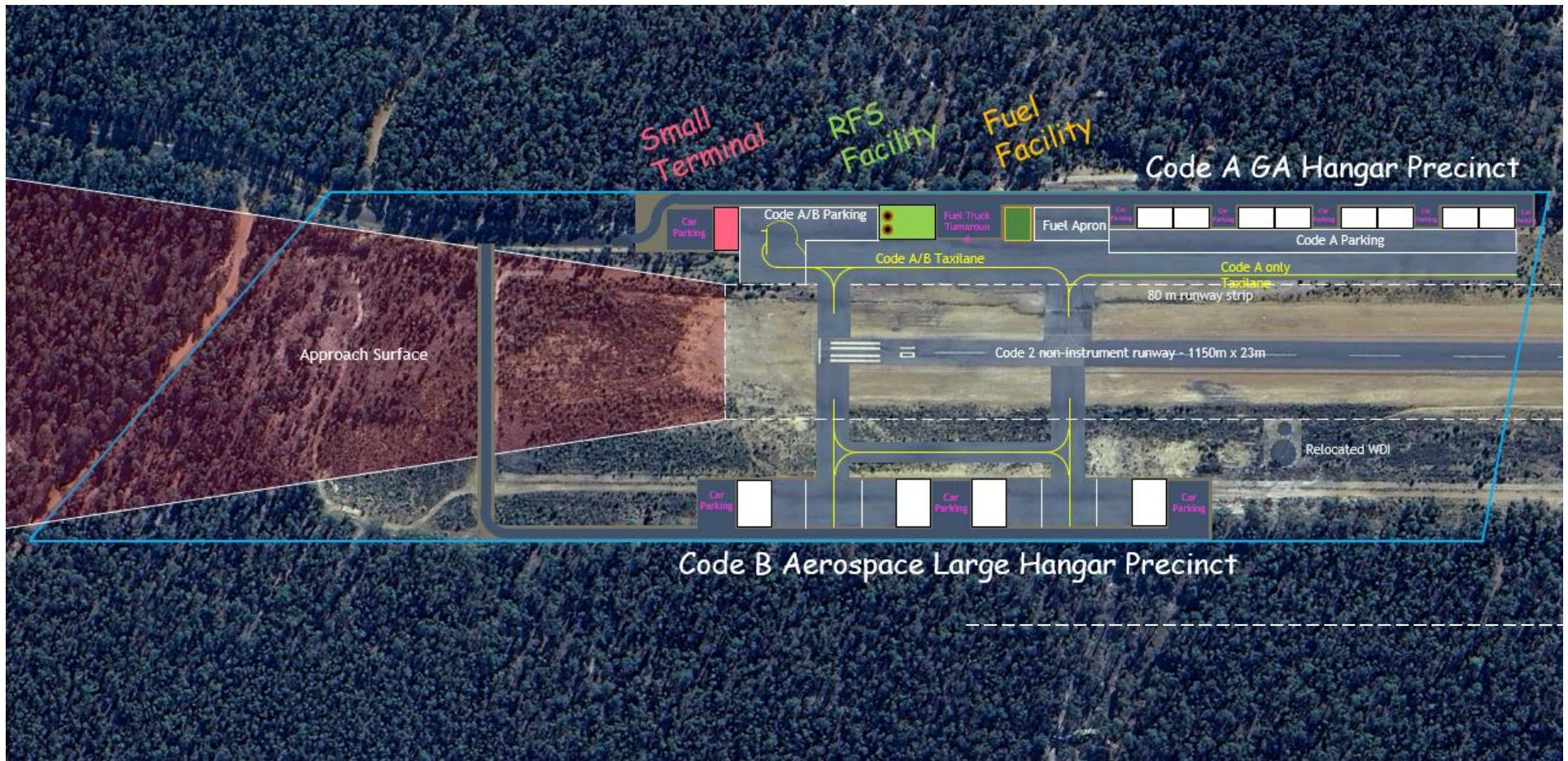


Figure 30 Option 1 - Code 2 non-instrument runway - development concept



Figure 31 Option 2 - Code 2 non-precision approach runway – development concept



Figure 32 Option 3 - Code 3 non-precision approach runway - development concept

8. MASTER PLAN

This section sets out the progressive development of the Collie Airfield according to the preferred Option 2 development concept.

Overall master plan stage drawings are provided in [Annexure 1](#).

8.1. Master Plan staging

The Master Plan has three major development stages. The time frames, which are aspirational only and subject to funding availability, market demand and detailed design process, are:

1. Initial Development (0-5 years) – The development elements that can realistically be implemented in the short term within the existing site or with minimal impact on the external environment
2. Certification and Expansion Stage 1 (5-10 years) – A significant expansion of the airfield and facilities suitable for the issue of an aerodrome certificate under CASR Part 139, introduction of instrument approaches and development of the site to enable a variety of commercial uses. Certification is a pre-requisite for the implementation of instrument flight procedures at an aerodrome.
3. Future Expansion Stage 2 (10+ years) – expanded hangar and commercial precincts – demand driven development.

These stages and suggested time frames show a logical progression in development that could take place for planning purposes. Actual development and time frames depend on demand and the policies adopted by the Shire of Collie to promote airport growth.

8.2. Initial Development

Initial development involves the following works:

- Widen the runway to 23 m and strengthen the pavement to support aircraft up to 10,000 kg maximum take-off weight

- Establish an 80 m wide runway strip
- Secure land tenure and relevant approvals
- Demolish/relocate the Aero Club's operations building and DBCA storage container, and provide a small passenger facility, parking apron and connecting taxiway, landside access and services
- Adjust the airside/landside boundary fence to accommodate the new facilities.

8.3. Certification and Expansion (Stage 1)

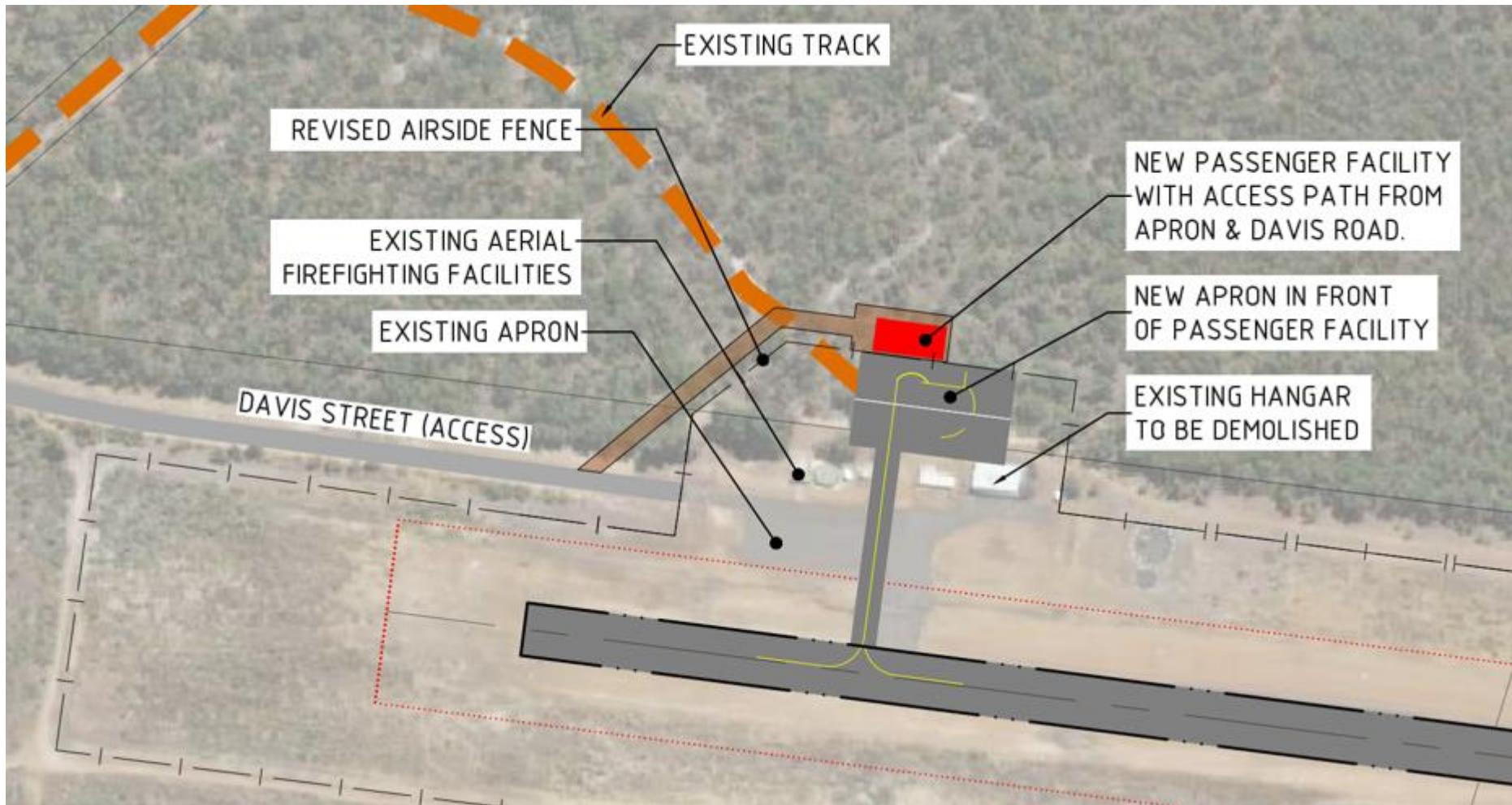
Certification and Expansion Stage 1 involves the following works:

- Secure land tenure and relevant approvals
- Demolish the existing hangar, RFDS transfer shed and overhead power lines
- Widen the runway strip to 140 m overall
- Implement runway end safety areas
- Relocate the primary illuminated wind direction indicator
- Upgrade and commission the runway lighting system
- Provide a new commercial precinct, firefighting facilities, hangar lane, fuel facility, stub taxiway, apron, landside access and services.
- Adjust the airside/landside boundary fence to accommodate the new facilities
- Certify the aerodrome
- Implement non-precision instrument approach procedures.

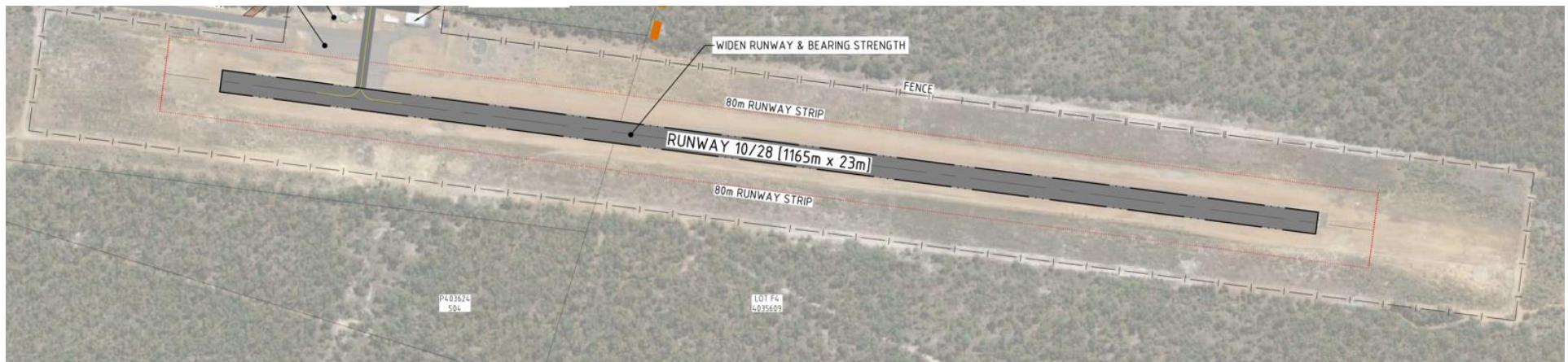
8.4. Future Expansion (Stage 2)

Future Expansion Stage 2 involves expanding the site to provide additional hangar sites and commercial lots according to demand, along with associated landside and civil works.

8.5. Initial Development – plan elements



- Demolish/relocate the Aero Club operations building and storage container
- Provide new passenger facility, stub taxiway and apron



- Widen the runway to 23 m, improve pavement bearing strength – 10,000 kg MTOW, rectify long section ch 960-1000 (>2%)
- Widen the runway strip to 80 m, 60 m beyond runway end

8.6. Certification and Expansion (Stage 1) – plan elements

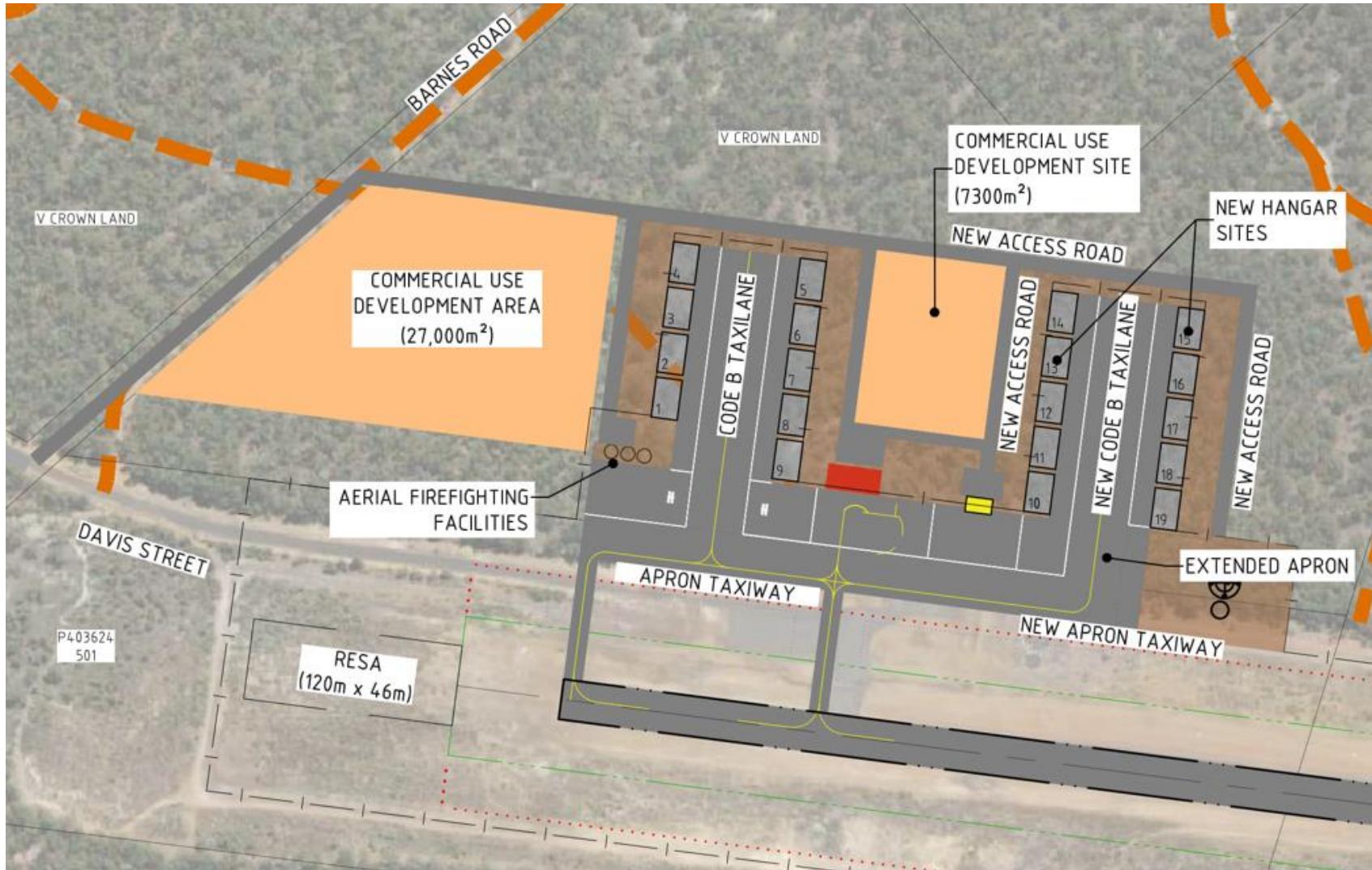


- Demolish existing hangars, operations building, RFDS transfer shed, overhead power lines
- Provide new commercial precinct, firefighting facilities, hangar lane, fuel facility, stub taxiway, apron, landside access and services



- 140 m wide runway strip, 60 m beyond runway end
- 120 m runway end safety areas (RESA)
- Upgrade and commission the runway lighting system
- Relocate the primary IWDI further away from runway strip
- Adjust airside/landside boundary fencing
- Certify the aerodrome
- Implement non-precision instrument approach procedures

8.7. Future Expansion (Stage 2) – plan elements



- Provide additional hangar lane and commercial precinct

9. AERODROME SAFEGUARDING

In addition to state requirements, the Commonwealth Government has an interest in better planning and integrated development on and around airports and to lessen the adverse effects of aviation activity on the environment and communities. While not a planning authority, it provides guidance on broader issues such as noise around airports that can be used by statutory authorities to achieve the stated objectives. The National Airports Safeguarding Advisory Group (NASAG) has produced the National Airports Safeguarding Framework to advance this agenda. The Framework should also be taken into consideration when designing development on and in the vicinity of the airport.

9.1. Aircraft noise

Aircraft noise can affect the allocation of appropriate uses on and external to the airport site.

Australian Noise Exposure Forecast (ANEF) contours provide a scientific measure of the aircraft noise exposure levels around airports taking into account the frequency, intensity, time and duration of aircraft operations. Standard methodology for evaluating the noise climate around airports is defined in AS 2021-2015 Acoustics – Aircraft Noise Intrusion – Building Siting and Construction, which recognises the ANEF contour charts as the primary method for long-term noise impact assessment.

Further information can be found in NASF Guideline A: *Measures for Managing Impacts of Aircraft Noise*.

9.2. Building generated windshear and turbulence

Building generated windshear / turbulence becomes safety critical when a significant obstacle, such as a building, is located in the path of a crosswind to an operational runway. The wind flow will be diverted around and over the buildings causing the crosswind speed to vary along the runway.

NASF Guideline B sets out an assessment methodology to follow in assessing this risk.

Further information can be found in NASF Guideline B: *Managing the Risk of Building Generated Windshear and Turbulence at Airports*.

9.3. Wildlife hazard buffer zone

All wildlife on or around an airport should be regarded as a potential hazard to aircraft safety. Most wildlife strikes occur on and in the vicinity of airports, where aircraft fly at lower elevations. Flying vertebrates (e.g., birds or bats) mainly use airspace within 300 metres of the ground so are likely to conflict with aircraft when they are at their most vulnerable, i.e., immediately after take-off and during landing approaches or other low flying manoeuvres. Development should seek to avoid creating wildlife attracting land uses both on and within the vicinity of the airport.

Further information can be found in NASF Guideline C: *Managing the Risk of Wildlife Strikes in the Vicinity of Airports*.

9.4. Lighting restriction zone

Manual of Standards Part 139 - Aerodromes establishes a restriction to lighting within the vicinity of an airport which, by reason of its intensity, configuration or colour, might endanger the safety of an aircraft. The vicinity of the airport can be taken to be within a 6km radius of the airport.

Further information can be found in NASF Guideline E: *Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports*.

9.5. Operational airspace

Obstacle limitation surfaces

An airport's obstacle limitation surfaces (OLS) define the operational airspace that should be kept free of obstacles for aircraft operations being conducted under the visual flight rules. Both current and future (ultimate) OLS should be considered in the design of developments on and within the vicinity of the airport.

Manual of Standards Part 139 Chapter 7 provides relevant parameters for the design of the OLS.

PANS-OPS surfaces

PANS-OPS surfaces define the operational airspace a pilot is required to use when flying an aircraft under the instrument flight rules—that is, when relying on instruments for navigation. Development should seek to avoid any permanent encroachments into current and future PANS-OPS airspace.

Further information can be found in NASF Guideline F: *Managing the Risk of Intrusions into the Protected Airspace of Airports*.

9.6. Building restricted areas for aviation facilities

The Building Restricted Area (BRA) is defined as a volume where buildings and other objects have the potential to cause unacceptable interference to the signal-in-space transmitted by the radio navigation facility. All radio navigation facilities have a BRA defined which may extend to a significant distance from the facility. The purpose of the Building Restricted Area is not intended to prohibit development but rather to trigger an assessment of a proposed building or development for its impact on the radio navigation facility. The BRA is primarily intended to be used by Aerodrome Operators and Local Planning Authorities but is also required to be used by the systems engineer when selecting a new site for a radio navigation facility. All development applications near a radio navigation facility shall be assessed to determine if the facility BRA is infringed. If there is no infringement the assessment process may be terminated, and the application approved.

Further information can be found in NASF Guideline G: *Protecting Aviation Facilities – Communications, Navigation and Surveillance (CNS)*.

9.7. Public safety areas

NASAG has drafted Guideline I *Managing the risk in public safety areas at the ends of runways*, to mitigate the risk to people on the ground near airports by informing a

consistent approach to land use at the end of Australian airport runways. Public safety areas (PSAs) seek to limit land uses that would increase the number of people in the area or result in the storage of hazardous materials in the zone.

The Guideline is intended to assist land-use planners at all levels to better consider public safety when assessing development proposals and rezoning requests and when developing strategic land use plans.

The premise of the public safety area (PSA) is to characterise the area within which a specified statistical level of risk to human life may be exceeded.

The Guideline notes that there is no single agreed tolerable level of risk defined in Australia or internationally and provides several options for the implementation of a PSA at the end of an airport runway, including the Queensland model, US DoD model and the UK public safety zone (NATS) model.

The Guideline goes on to suggest “The reasons for adopting a particular approach should be clearly justified and articulated to explain why a particular model is best suited to an airport’s circumstances.”

The first option referenced in the Guideline is the UK Public Safety Zone Aviation Model. This model is based on a relatively sophisticated methodology, developed by the Research and Development Directorate of NATS (formerly National Air Traffic Services Limited), that determines the individual risk profile of an airport according to:

- the statistical expectation that an aircraft crash occurs in the vicinity of the airport;
- the probability, given a crash has occurred, that it affects a particular location;
- the size of the area likely to be affected as a result of a crash; and
- the probability of fatality for people on the ground within that area.

The UK (NATS) Public Safety Zone Model is applied using a constrained cost-benefit analysis to determine specific land use restrictions.

According to the UK Government's Policy Paper *Control of development in airport public safety zones*, updated 8 October 2021, standard dimension Public Safety Zones are established at airports that have more than 18,000 commercial air transport movements per year. The standardised shape of the PSZ (illustrated at Figure 33) that replaces the risk-based model profile has been defined using the latest data on accidents shown to be located outside the aerodrome boundary.

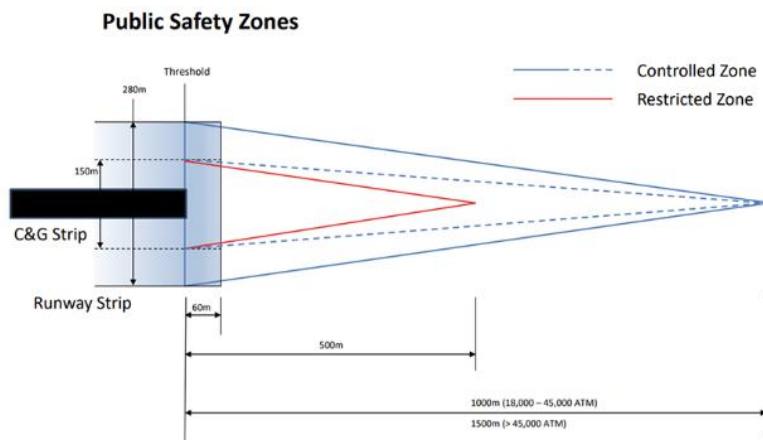


Figure 33 UK Public Safety Zone model

Since Collie Airfield does not have and is not expected to have greater than 18,000 commercial air transport movements per year, the UK Public Safety Zone model would not be applied to runway 10/28 if it was subject to the UK Policy paper – *Control of development in airport public safety zones*.

The Queensland PSA model is based on an isosceles trapezoid 1000 m long, 350 m wide closest to the runway end, tapering to a width of 250 m furthest from the runway.

Queensland's State Planning Policy – state interest guidance material *Strategic airports and aviation facilities*, July 2017, Appendix 7, notes as follows:

1. The PSA dimensions indicate an area where the risk per year, resulting from an aircraft crash, to a representative individual (*individual risk*) is 1 in 10,000 (10^4). As general guidance, it would be inappropriate for a use, subject to assessment against the SPP, to be exposed to a higher *individual risk* than 1 in 10,000 (10^4).

2. The PSA dimensions also partially enclose an area of *individual risk* of 1 in 100,000 (10^5).

The guidance material also sets out the circumstances in which a PSA would be required for a strategic airport. These circumstances are copied as follows:

A PSA is required at each end of a strategic airport's main runway if:

- the airport is listed as a 'Commonwealth place' under the Commonwealth Places (Application of Laws) Act 1970
- the airport is a joint-user airport under the control of the Department of Defence (DoD) where an arrangement under section 20 of the Commonwealth Civil Aviation Act 1988 is in force
- the airport is a defence airfield subject to the Defence Act 1903 administered by DoD
- the runway meets the following criteria:
 - i. accommodates regular public transport jet aircraft services, or
 - ii. greater than 10,000 aircraft movements occur per year (excluding light aircraft movements).

PSAs are also required for other runways (i.e., secondary or cross-runways) of strategic airports where the runway meets the aircraft movements' threshold listed above (i.e., criteria i or ii above). Appendix 9 identifies the strategic airport runways where PSAs are required.

There are no jet aircraft currently conducting or forecast to conduct regular public transport services at Collie Airfield.

Since Collie Airfield does not have and is not expected to have greater than 10,000 aircraft movements per year (excluding light aircraft movements) or regular public transport jet aircraft services, the PSA would not be applied to runway 10/28 if it was a strategic airport under the Queensland State Planning Policy.

The US Department of Defense (DoD) framework provides for Accident Potential Zones according to two runway types. The type applicable to Collie Airfield (Class A Runway – less than 2438.4 m long) would have a clear zone that is 305 m wide (152.5 m either side of centreline) and 915 m long. It is understood that no airports in Australia use this type of public safety area.

Neither the Queensland nor UK PSA models would be applied to Collie Airfield if it was subject to their jurisdiction, as there are insufficient numbers of nominated aircraft movements to trigger the requirement. This is reflective of the lower level of risk associated with the scope of aircraft operations conducted at the aerodrome.

Since the level of risk characterised by current and forecast scope of aircraft operations at Collie Airfield is lower than that embodied in the various public safety areas models discussed in Guideline I, this concept has not been incorporated in the future planning of the airport.

Further information can be found in NASF Guideline I *Managing the Risk in Public Safety Areas at the Ends of Runways*.

10. GLOSSARY

AAGR	average annual growth rate	HLS	helicopter landing site
AIAC	Australian International Aviation College	ICAO	International Civil Aviation Organization
AIP	Aeronautical Information Package	INP	instrument non-precision
AMSL	above mean sea level	IWDI	illuminated wind direction indicator
ANEF	Australian Noise Exposure Forecast	LGA	local government authority
ARFFS	aerodrome rescue and firefighting service	LIRL	low intensity runway lights
AsA	Airservices Australia	MOS	Manual of Standards
ATC	air traffic control	MRO	maintenance, repair and overhaul
BRA	building restricted area	MTOW	maximum take-off weight
CAAP	Civil Aviation Advisory Publication	NASF	National Airports Safeguarding Framework
CAR	Civil Aviation Regulation 1988	NBN	National Broadband Network
CASA	Civil Aviation Safety Authority	NDB	Non-Directional Beacon
CASR	Civil Aviation Safety Regulation 1998	OLS	obstacle limitation surfaces
CTAF	Common Traffic Advisory Frequency	PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
ERSA	En Route Supplement Australia	PAPI	Precision Approach Path Indicator
eVTOL	electric vertical take-off and landing	RFDS	Royal Flying Doctor Service
GA	general aviation	RNAV-GNSS	Area Navigation – Global Navigation Satellite System
GNSS	Global Navigation Satellite System	RPT	regular public transport
GPS	Global Positioning System	RTIL	runway end identifier lights
GSE	ground support equipment		

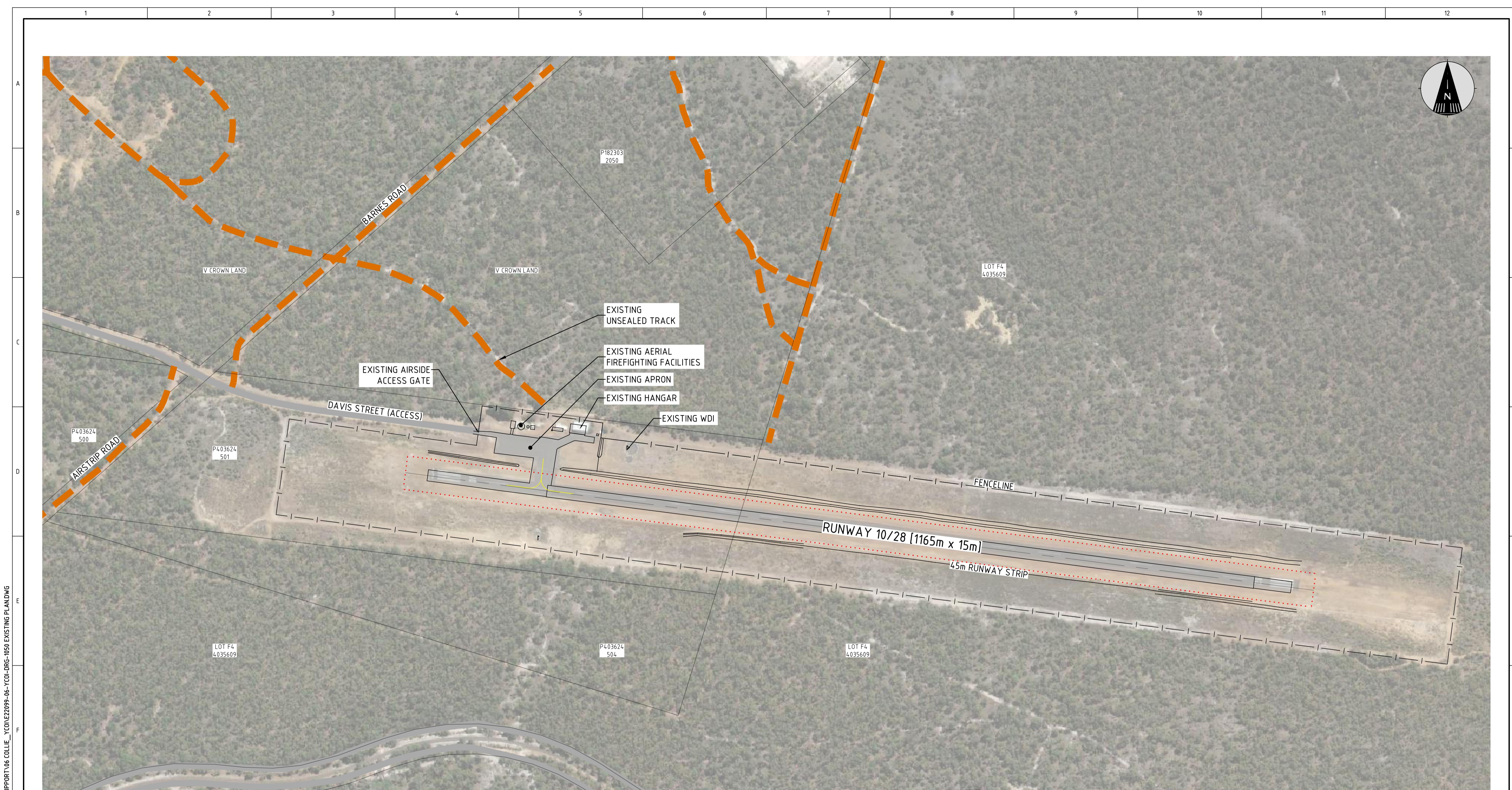
11. REFERENCES

- Airservices Australia, Aeronautical Information Package; including En Route Supplement Australia (ERSA, RDS, DAP)
- Australian Airports Association, Regional Airport Master Planning Guideline, Airport Practice Note 4
- Civil Aviation Safety Authority, Civil Aviation Safety Regulations 1998
- Civil Aviation Safety Authority, *Part 139 (Aerodromes) Manual of Standards 2019*, dated 13 August 2020
- International Civil Aviation Organization, International Standards and Recommended Practices (SARPS) Annex 14 Aerodromes, Volume 1 Aerodrome Design and Operations and Volume II Heliports
- OzRunways, aeronautical navigation charts extracts

ANNEXURES

Annexures contain the following Collie Airfield Master Plan Drawings:

1. Existing arrangement [E22099-06-YCOI-DRG-1050, Rev B]
2. Aerodrome Development – Initial Development Code 2 Non-instrument [E22099-06-YCOI-DRG-1100 Rev B]
3. Aerodrome Development – Certification and Expansion Code 2 Non-precision Instrument – Stage 1 [E22099-06-YCOI-DRG-1101, Rev B]
4. Aerodrome Development – Certification and Expansion Code 2 Non-precision Instrument – Stage 2 [E22099-06-YCOI-DRG-1102, Rev B]
5. Aerodrome Development – Aerodrome Entry and Terminal Precinct – Stage 2 [E22099-06-YCOI-DRG-1105, Rev B]
6. Obstacle Limitation Surface [E22099-06-YCOI-DRG-1120, Rev B]
7. Declared Distances [E22099-06-YCOI-DRG-1121, Rev B]
8. Wildlife Buffer Zones [E22099-06-YCOI-DRG-1125, Rev B]
9. Lighting in the Vicinity of Aerodrome [E22099-06-YCOI-DRG-1126, Rev B]
10. Windshear Trigger Assessment [E22099-06-YCOI-DRG-1127, Rev B]



PLAN

SCALE 1:2500

B	GENERAL REISSUE ORIGINAL ISSUE	29.11.2023 27.10.2023	APC APC	PJO PJO
A	DESCRIPTION	DATE	DESIGN	VERIFIED
REV	APPROVED			



CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

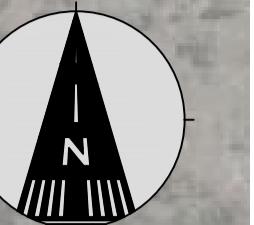
AVIATION PROJECTS

DRAWN APC 31.10.2023	DRAFTING CHECK PJO 31.10.2023	DESIGNED APC 31.10.2023	DESIGN CHECK PJO 31.10.2023	VERIFIED PJO 31.10.2023
APPROVED				

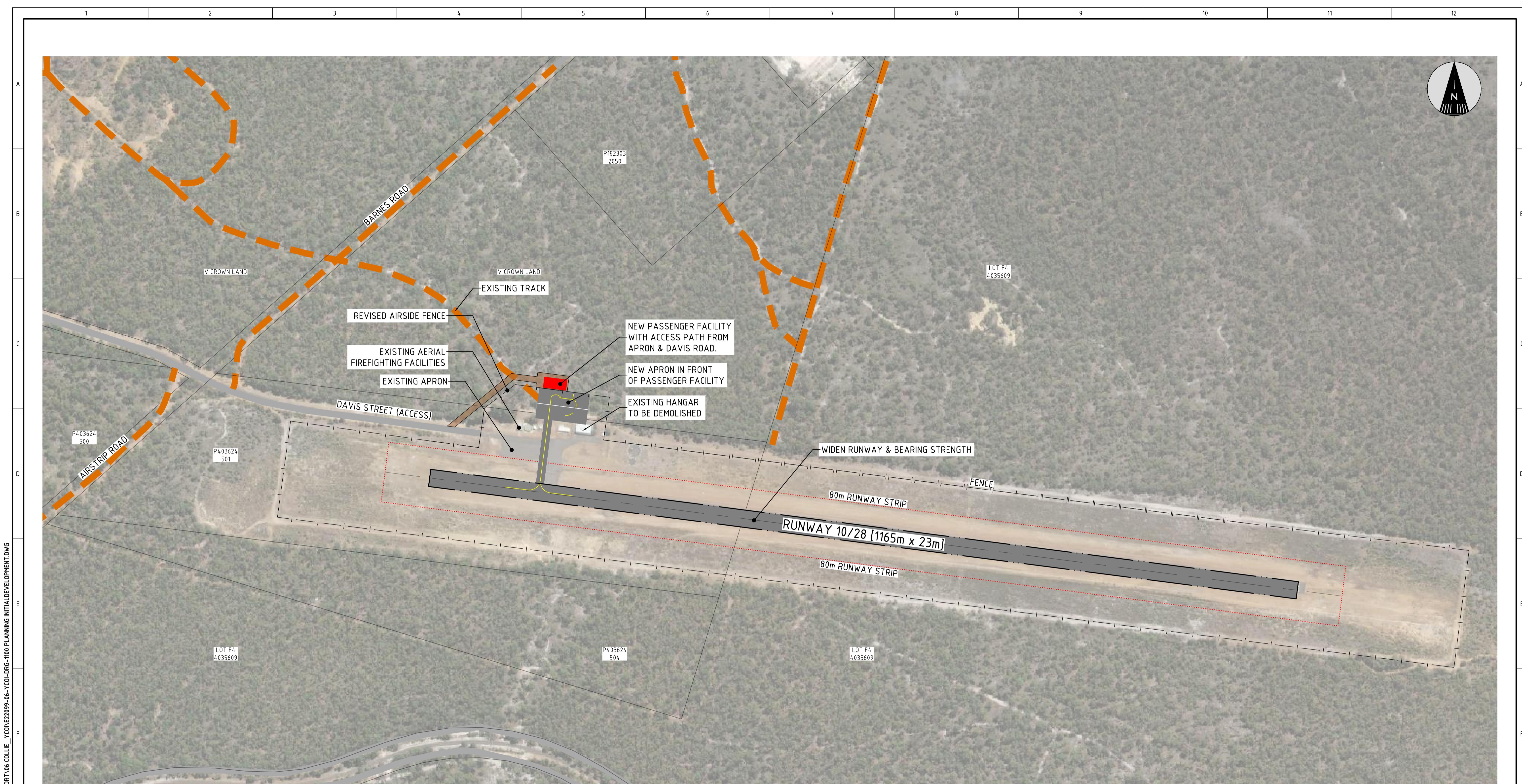
DRAWING SCALE	GRID MGA-50	ORIG. SIZE
1:2500	DATUM AHD	A1

STATUS
FOR INFORMATION
AERODROME PLANNING
EXISTING ARRANGEMENT

DRAWING No.
E22099-06-YCOI-DRG-1050



REVISION
B



PLAN

SCALE 1:2500

SCALE 1:2500 (A1) 0 50 100 150 200 250m

B	GENERAL REISSUE	APC	PJO	
A	ORIGINAL ISSUE	27.10.2023	APC	PJO
REV	DATE	DESIGN	VERIFIED	APPROVED
1	2	3	4	5



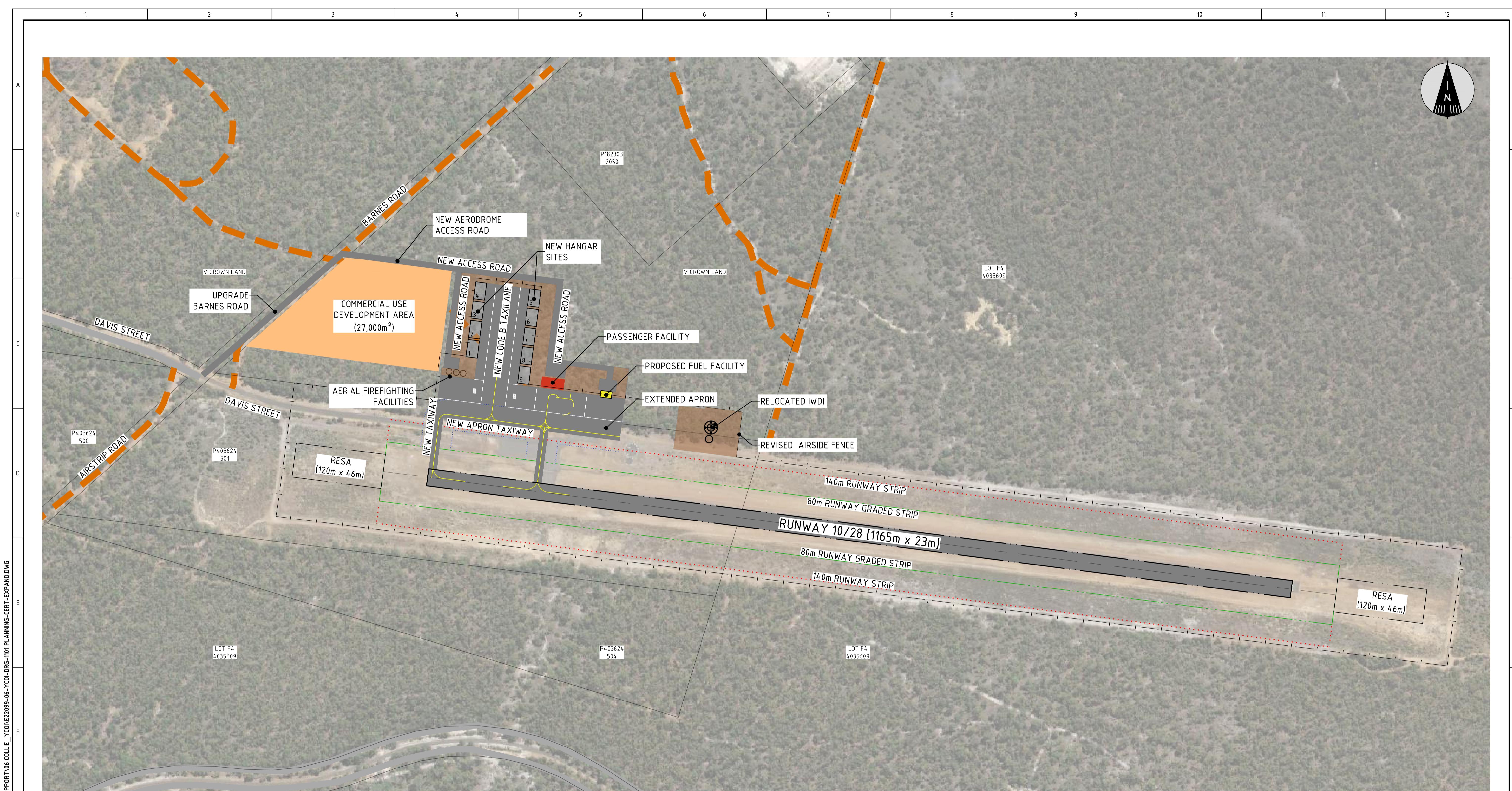
CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225



DRAWN APC 31.10.2023	DRAFTING CHECK PJO 31.10.2023	DESIGNED APC 31.10.2023	DESIGN CHECK PJO 31.10.2023	VERIFIED PJO 31.10.2023
APPROVED				



STATUS
FOR INFORMATION
AERODROME PLANNING
AERODROME DEVELOPMENT - INITIAL DEVELOPMENT
CODE 2 NON-INSTRUMENT
DRAWING No.
E22099-06-YCOI-DRG-1100
REVISION
B



PLAN

SCALE 1:2500

SCALE 1:2500 (A1) 50 0 50 100 150 200 250m

B	GENERAL REISSUE	29.11.2023	APC	PJO
A	ORIGINAL ISSUE	27.10.2023	APC	PJO
REV	DESCRIPTION	DATE	DESIGN	VERIFIED



CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225



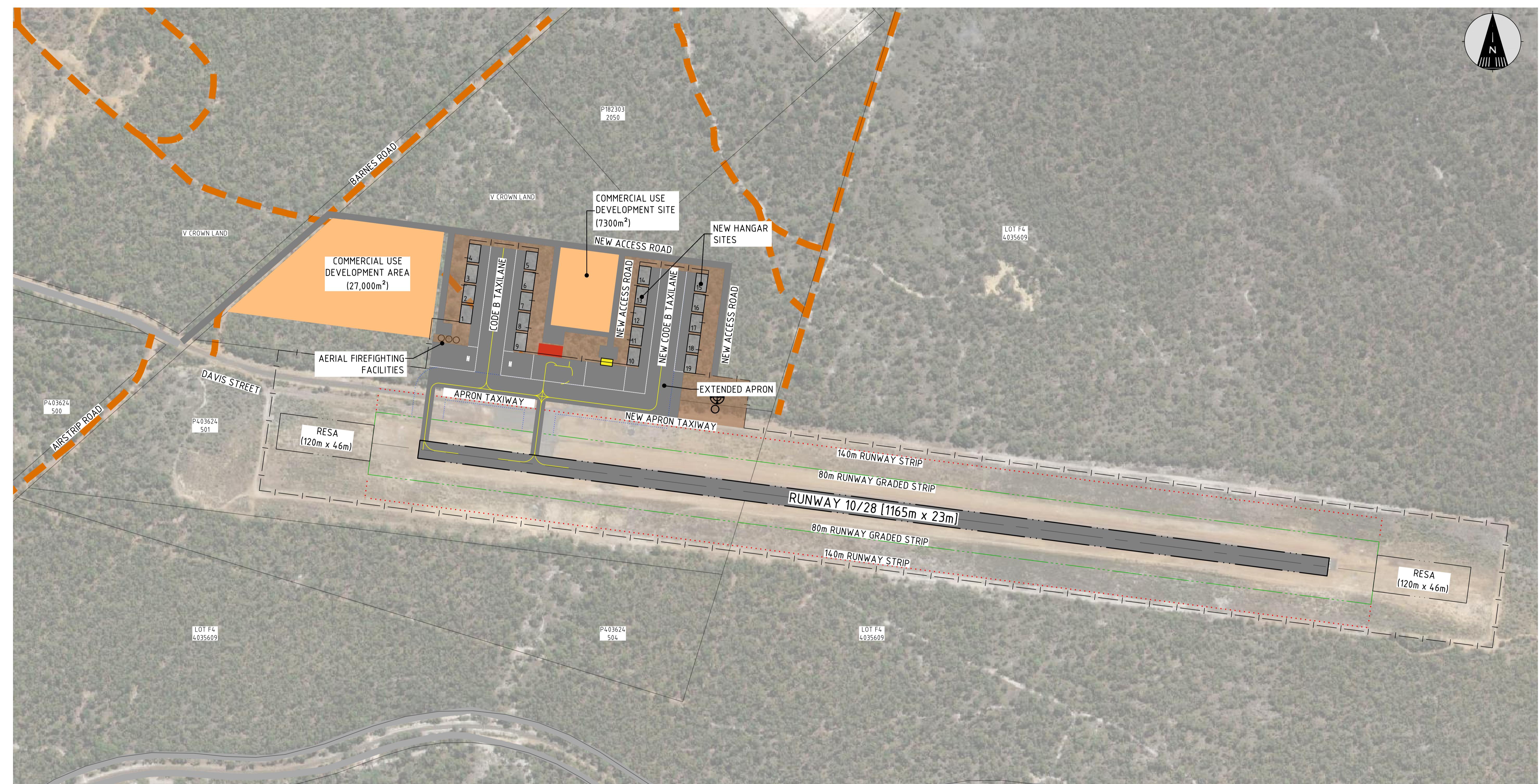
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DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023

APPROVED
DRAWING SCALE

1:2500
GRID MGA-50

DATUM AHD
A1

STATUS
FOR INFORMATION
ACG
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AERODROME PLANNING
AERODROME DEVELOPMENT - CERTIFICATION & EXPANSION
CODE 2, NON-PRECISION INSTRUMENT - STAGE 1
DRAWING No.
E22099-06-YCOI-DRG-1101
REVISION
B



PLAN
SCALE 1:2500

SCALE 1:2500 (A1) 50 0 50 100 150 200 250m

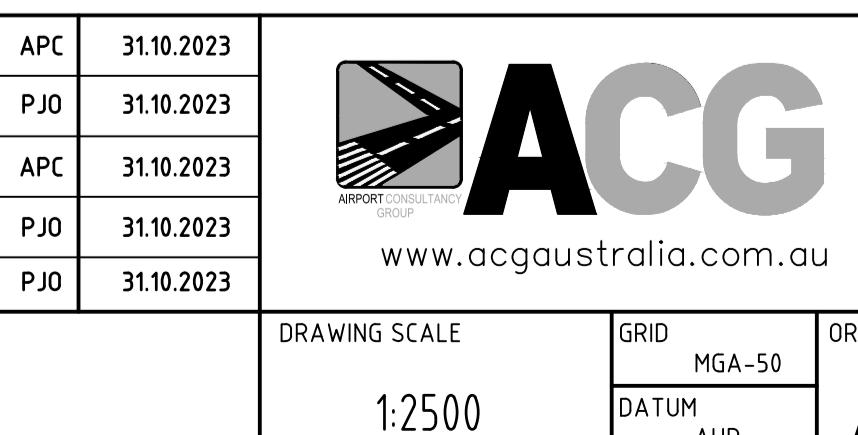
B	GENERAL REISSUE ORIGINAL ISSUE	APC 29.11.2023 27.10.2023	PJO 29.11.2023 27.10.2023
A	DESCRIPTION	DATE	DESIGN VERIFIED APPROVED
REV			



CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225



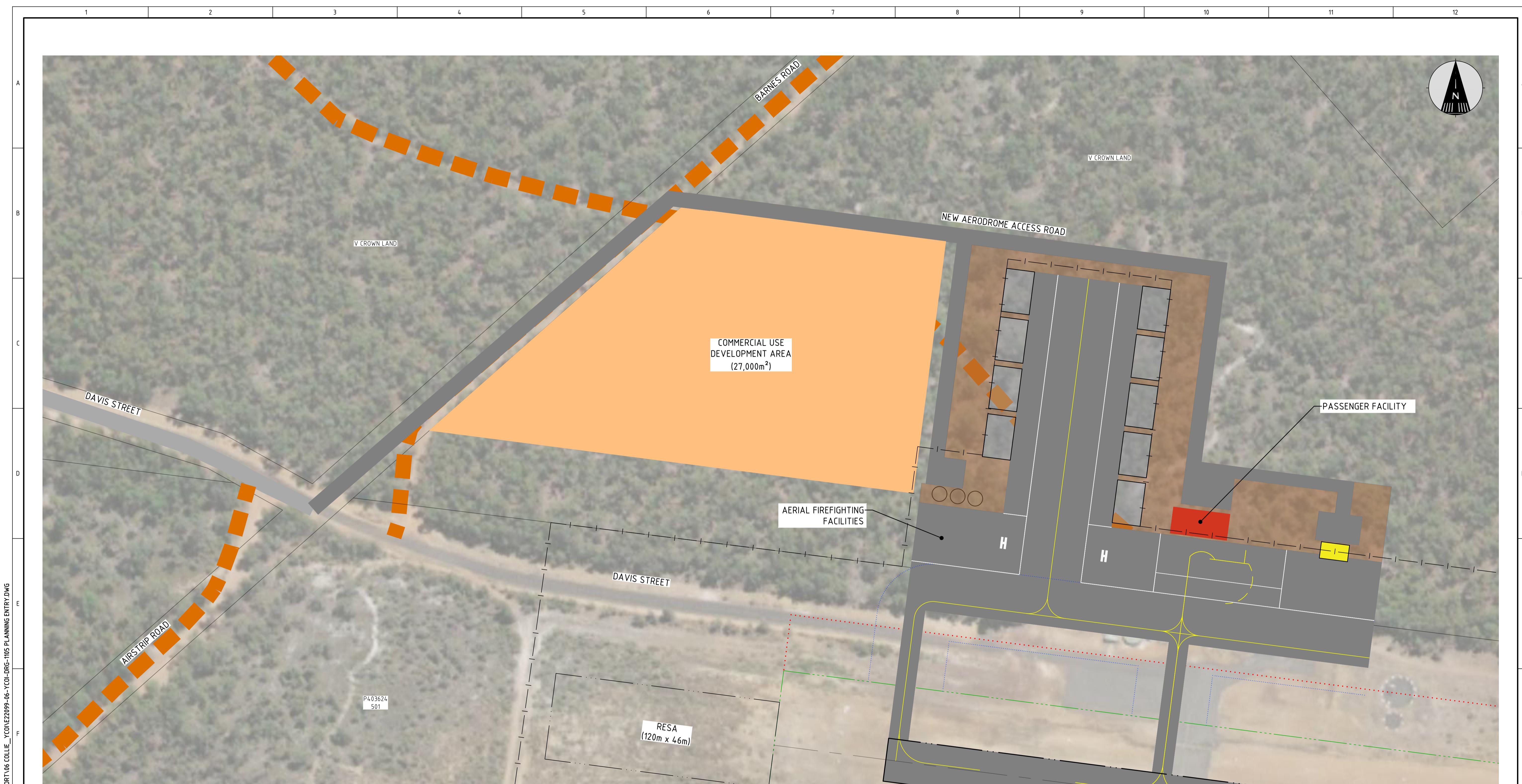
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APPROVED				



STATUS FOR INFORMATION
AERODROME PLANNING
AERODROME DEVELOPMENT - CERTIFICATION & EXPANSION
CODE 2, NON-PRECISION INSTRUMENT - STAGE 2

DRAWING No.
E22099-06-YCOI-DRG-1102

REVISION B



DATE: Wednesday, 13 April 2022 9:45:10 AM

B	GENERAL REISSUE	29.11.2023	APC	PJO	
A	ORIGINAL ISSUE	27.10.2023	APC	PJO	
REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
1	2	3	4	5	6



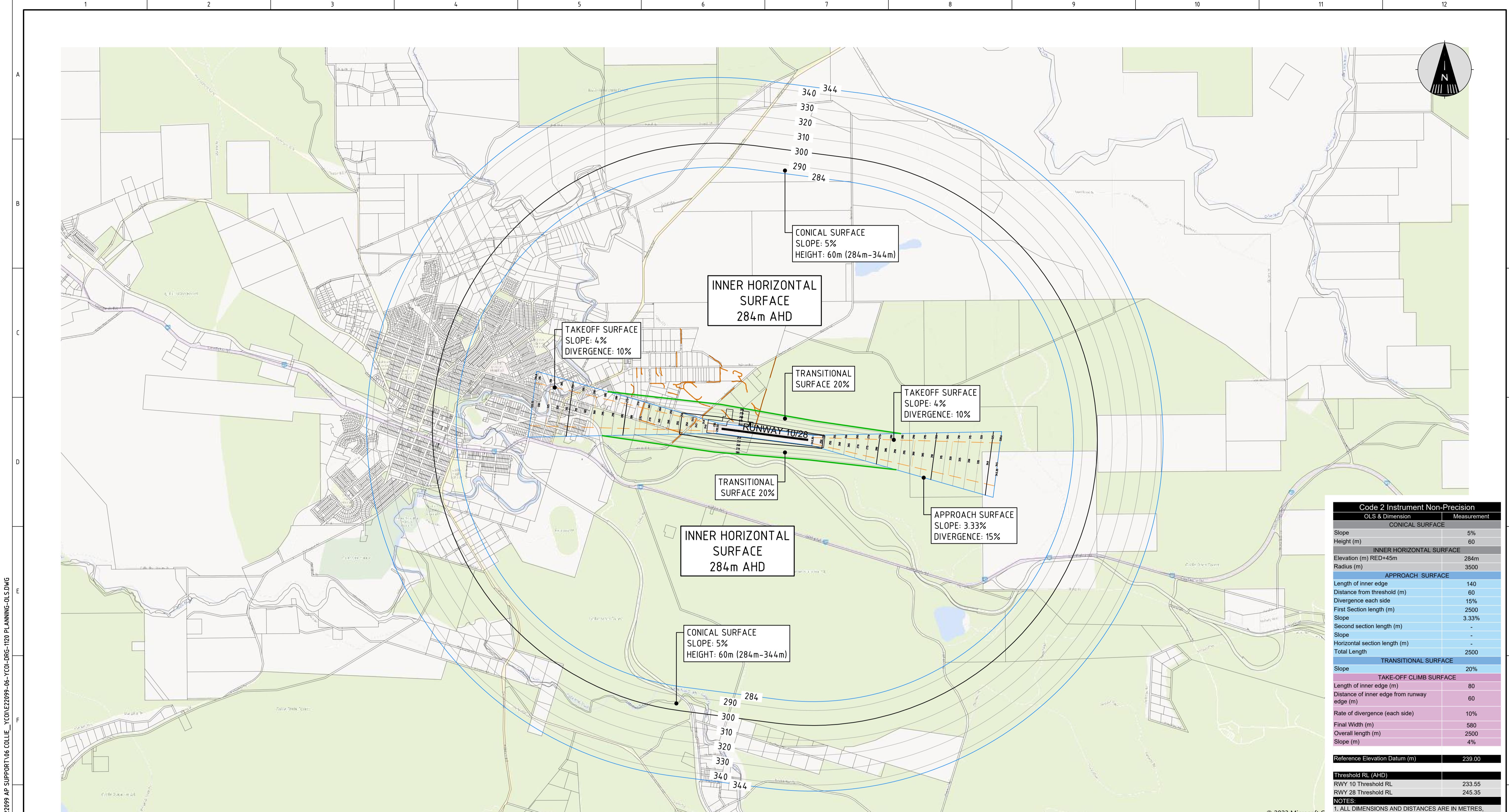
CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

AVIATION PROJECTS

DRAWN	APC	31.10.2023
DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023



STATUS FOR INFORMATION		
AERODROME PLANNING		
AERODROME DEVELOPMENT		
AERODROME ENTRY & TERMINAL PRECINCT		
DRAWING No.	E22099-06-YCOI-DRG-1105	REVISION B
DRAWING SCALE	1:1000	GRID MGA-50
		DATUM AHD
APPROVED	A1	



PLAN

SCALE 1:25,000

SCALE 1:25,000 (A1) 0 500 1000 1500 2000 2500m

Shire of Collie			
A	ORIGINAL ISSUE	31.10.2023	APC
B	DESCRIPTION	DATE	DESIGN
C		VERIFIED	APPROVED
D	REV		



CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

AVIATION
PROJECTS

DRAWN	APC	31.10.2023
DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023

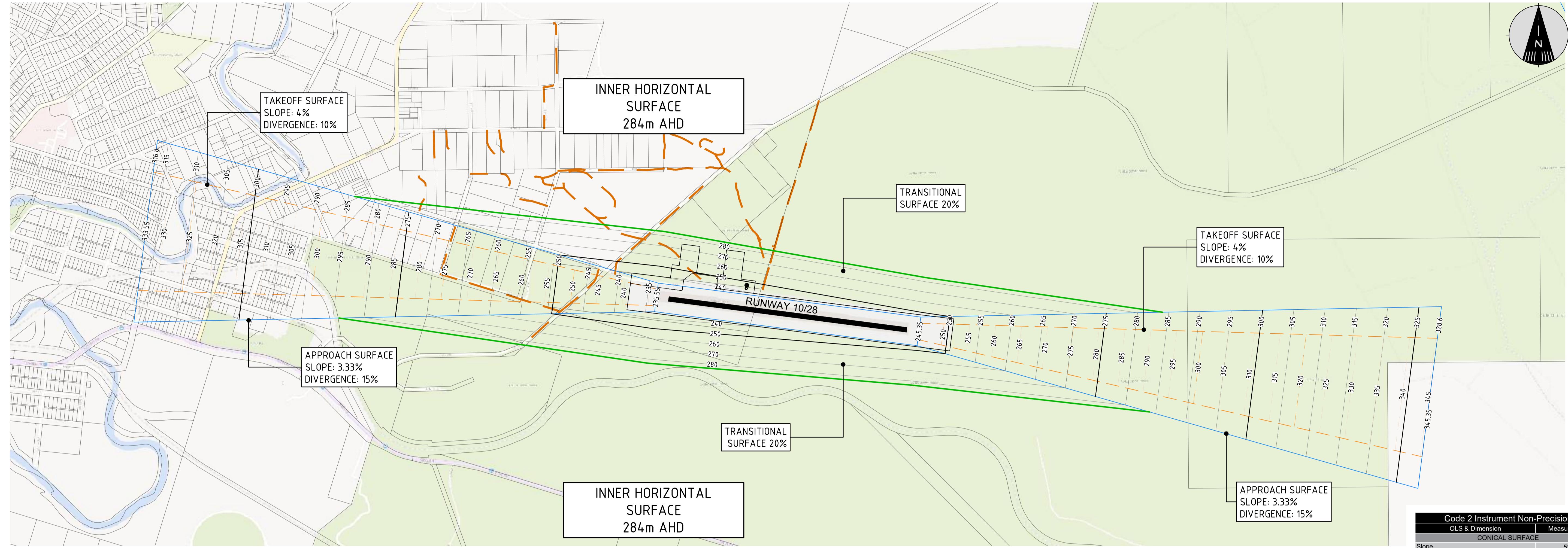
APPROVED	DRAWING SCALE	GRID MGA-50	ORIG. SIZE
	1:25,000	DATUM AHD	A1



STATUS
FOR INFORMATION
AERODROME PLANNING
PROJECT PLANNING
OBSTACLE LIMITATION SURFACE

DRAWING No.
E22099-06-YCOI-DRG-1120

REVISION
B



PLAN

SCALE 10,000

Code 2 Instrument Non-Precision	
OLS & Dimension	Measurement
CONICAL SURFACE	
Slope	5%
Height (m)	60
INNER HORIZONTAL SURFACE	
Elevation (m) RED+45m	284m
Radius (m)	3500
APPROACH SURFACE	
Length of inner edge	140
Distance from threshold (m)	60
Divergence each side	15%
First Section length (m)	2500
Slope	3.33%
Second section length (m)	-
Slope	-
Horizontal section length (m)	-
Total Length	2500
TRANSITIONAL SURFACE	
Slope	20%
TAKE-OFF CLIMB SURFACE	
Length of inner edge (m)	80
Distance of inner edge from runway edge (m)	60
Rate of divergence (each side)	10%
Final Width (m)	580
Overall length (m)	2500
Slope (m)	4%
Reference Elevation Datum (m)	
239.00	
Threshold RL (AHD)	
RWY 10 Threshold RL	
233.55	
RWY 28 Threshold RL	
245.35	
NOTES:	
1. ALL DIMENSIONS AND DISTANCES ARE IN METRES, UNLESS OTHERWISE STATED.	
2. ELEVATION DATUM = 239m AHD.	
3. OLS SURFACES IN ACCORDANCE WITH PART 139 MoS / ICAO Annex 14.	
FOR MORE INFORMATION, REFER TO:	
· PART 139 MANUAL OF STANDARDS, CHAPTER 7	
· NATIONAL AIRPORT SAFEGUARDING FRAMEWORK GUIDELINE F	

SCALE 1:10000 (A1) 0 200 400 600 800 1000m

200

100



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SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

AVIATION PROJECTS

DRAWN	APC	31.10.2023
DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023

APPROVED

DRAWING SCALE	GRID	ORIG. SIZE
1:10,000	MGA-50	A1
DATUM	AHD	

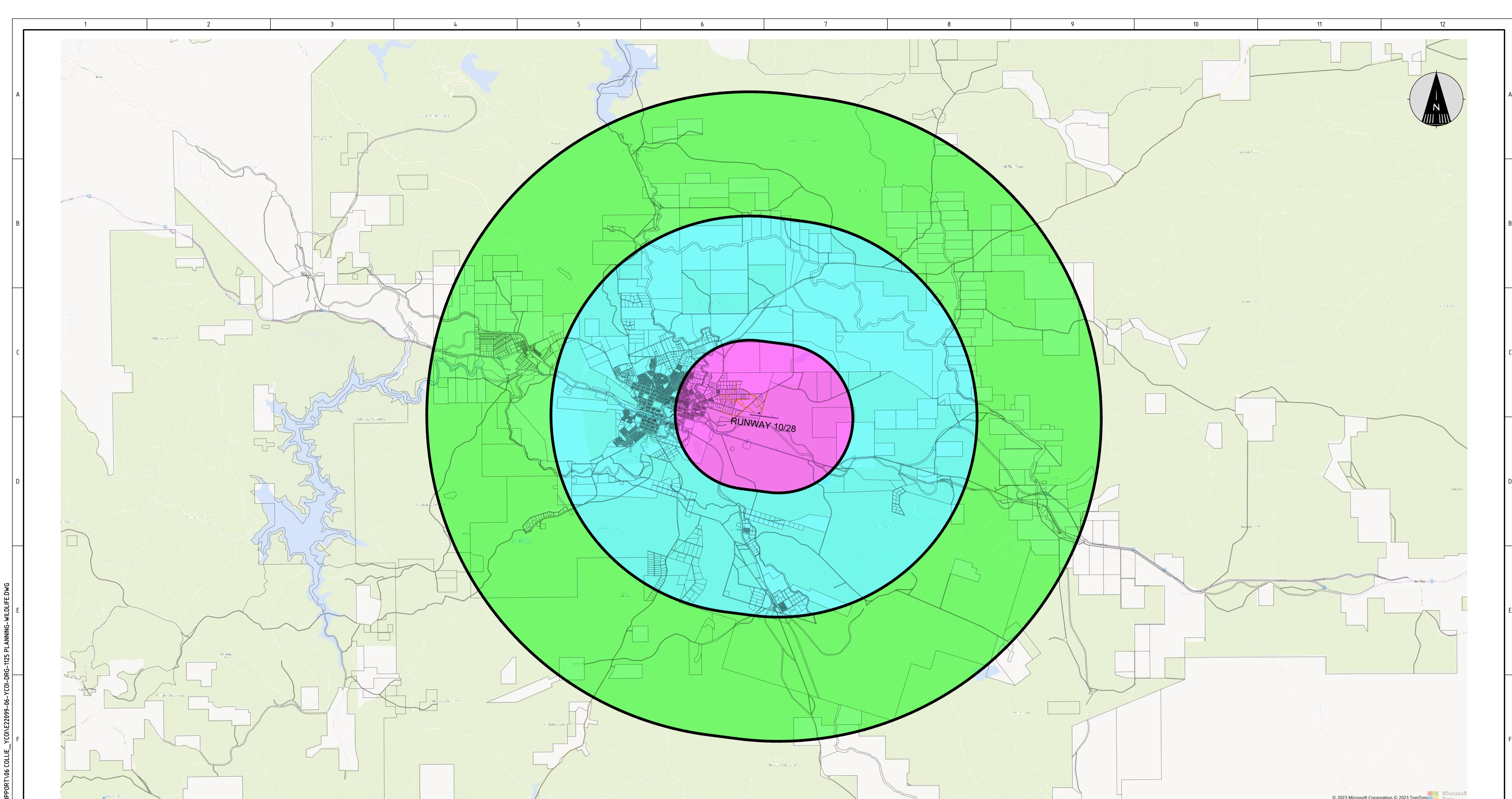


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STATUS
FOR INFORMATION
AERODROME PLANNING
PROJECT PLANNING
DECLARED DISTANCES

DRAWING No.
E22099-06-YCOI-DRG-1121REVISION
B

B	GENERAL REISSUE	29.11.2023	APC	PJO
A	ORIGINAL ISSUE	31.10.2023	APC	PJO
REV	DESCRIPTION	DATE	DESIGN	VERIFIED



WILDLIFE HAZARD ZONES

- 3km ZONE
- 8km ZONE
- 13km ZONE

BY: AARON COGHILL

- FOR MORE INFORMATION, REFER TO:
- PART 139 MANUAL OF STANDARDS, CHAPTER 17
 - NATIONAL AIRPORT SAFEGUARDING FRAMEWORK GUIDELINE C

PLAN

SCALE 1:75,000

SCALE 1:75,000 (A1) 0 1500 3000 4500 6000 7500m
1500 750

B	GENERAL REISSUE	APC	PJO
A	ORIGINAL ISSUE	31.10.2023	APC
REV	DATE	DESIGN	VERIFIED

DESCRIPTION



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SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225



DRAWN	APC	31.10.2023
DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023

APPROVED

DRAWING SCALE	GRID	ORIG. SIZE
1:75,000	MGA-50	
	DATUM AHD	

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STATUS
FOR INFORMATION
AERODROME PLANNING
PROJECT PLANNING
WILDLIFE HAZARD ZONES
DRAWING No.
E22099-06-YCOI-DRG-1125
REVISION
B

B	GENERAL REISSUE	29.11.2023	APC PJO
A	ORIGINAL ISSUE	31.10.2023	APC
REV	DATE	DESIGN	VERIFIED APPROVED

DESCRIPTION

B	GENERAL REISSUE	29.11.2023	APC PJO
A	ORIGINAL ISSUE	31.10.2023	APC
REV	DATE	DESIGN	VERIFIED APPROVED

DESCRIPTION

B	GENERAL REISSUE	29.11.2023	APC PJO
A	ORIGINAL ISSUE	31.10.2023	APC
REV	DATE	DESIGN	VERIFIED APPROVED

DESCRIPTION

LEGEND DESCRIPTIONMAXIMUM INTENSITY OF LIGHT SOURCES
MEASURED AT 3° ABOVE THE HORIZONTAL

	ZONE A	600m WIDE 0 cd 1000m FROM RWY STRIP
	ZONE B	900m WIDE 50 cd 2000m FROM RWY STRIP
	ZONE C	1200m WIDE 150 cd 3000m FROM RWY STRIP
	ZONE D	1500m WIDE 450 cd 4500m FROM RWY STRIP

MAXIMUM INTENSITY OF ZERO CANDELLA
ABOVE THE HORIZONTAL
(Refer Airport Developmental Guidelines)— — — GENERAL LIGHT CONTROL ZONE
(6km RADIUS)FOR MORE INFORMATION, REFER TO:

- PART 139 MANUAL OF STANDARDS, CHAPTER 9
- NATIONAL AIRPORT SAFEGUARDING FRAMEWORK
GUIDELINE E

B	GENERAL REISSUE	29.11.2023	APC	PJO	
A	ORIGINAL ISSUE	31.10.2023	APC	PJO	
REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
1	2	3	4	5	6

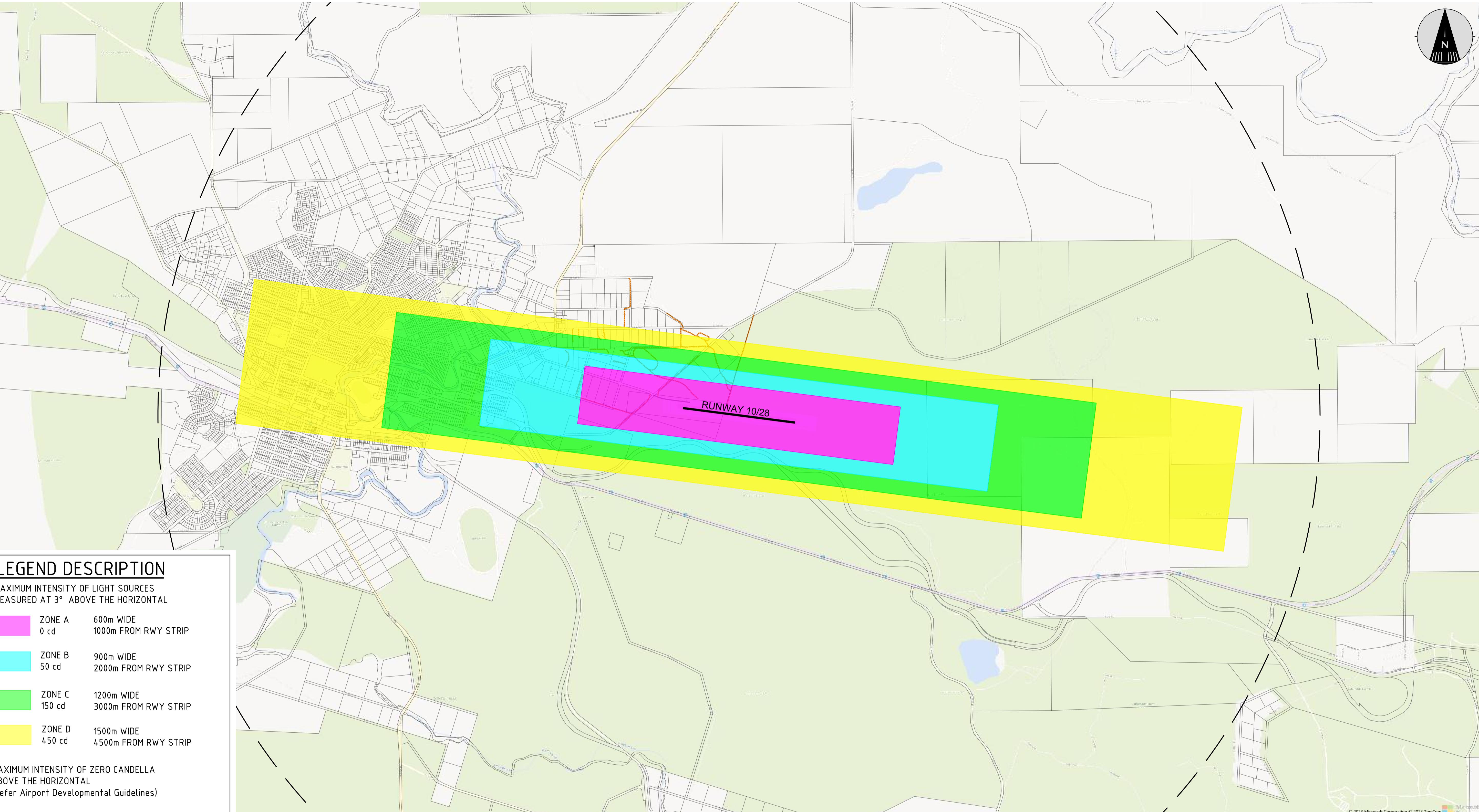


CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

AVIATION PROJECTS

PLAN

SCALE 1:25,000



SCALE 1:25,000 (A1) 0 500 1000 1500 2000 2500m



STATUS
FOR INFORMATION
AERODROME PLANNING
PROJECT PLANNING
LIGHTING IN THE VICINITY OF AERODROME

DRAWING No.
E22099-06-YCOI-DRG-1126

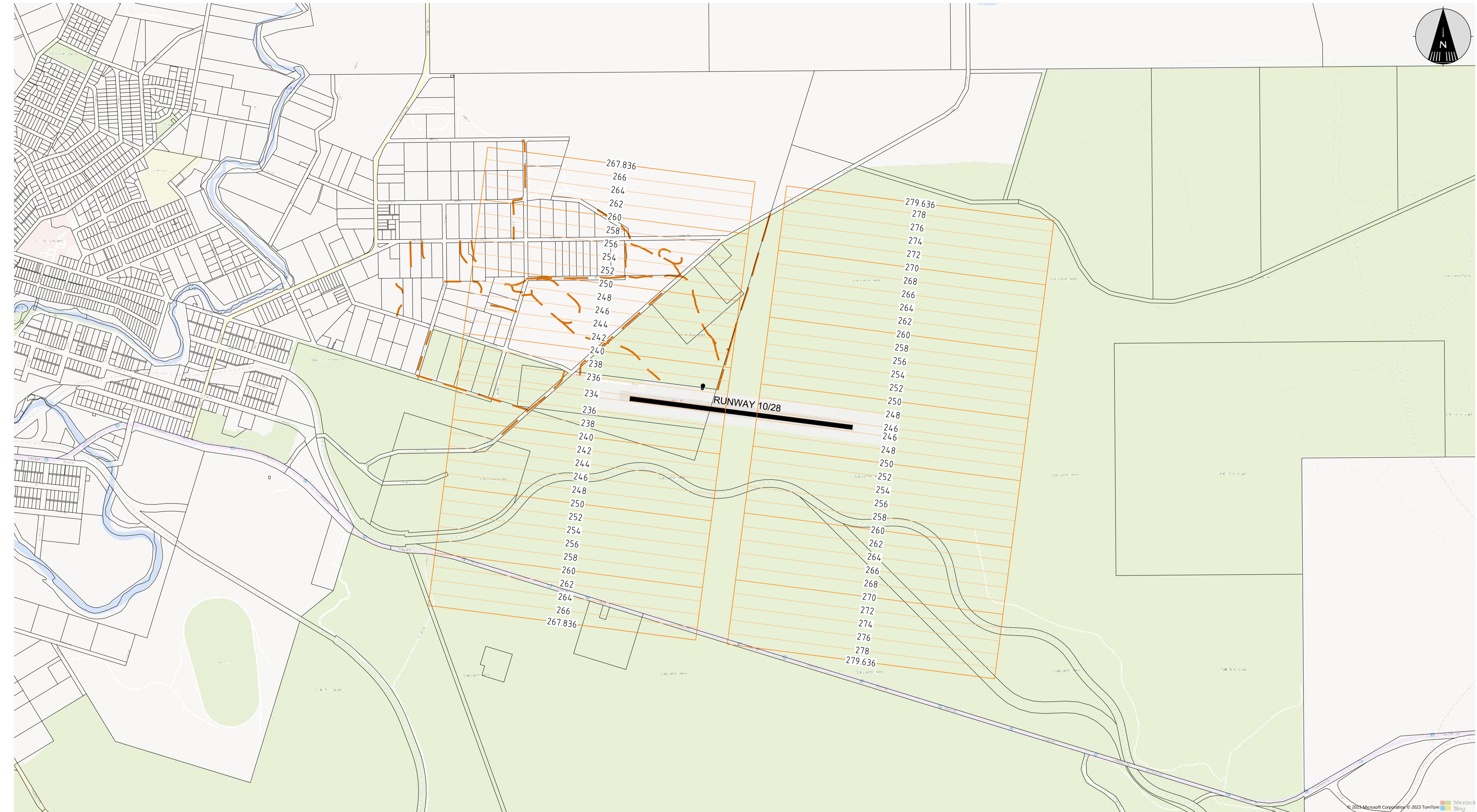
REVISION
B

DRAWN	APC	31.10.2023
DRAFTING CHECK	PJO	31.10.2023
DESIGNED	APC	31.10.2023
DESIGN CHECK	PJO	31.10.2023
VERIFIED	PJO	31.10.2023

APPROVED

DRAWING SCALE	GRID	ORIG. SIZE
1:25,000	MGA-50	
	DATUM AHD	

A1

LEGEND

DESIGN 2m CONTOUR
DESIGN 10m CONTOUR

FOR MORE INFORMATION, REFER TO:
• NATIONAL AIRPORT SAFEGUARDING FRAMEWORK GUIDELINE B

PLAN
SCALE 1:10,000

SCALE 1:10,000 (A1) 0 200 400 600 800 1000m



CLIENT
SHIRE OF COLLIE
PROJECT
COLLIE AIRFIELD MASTER PLAN
Davis St, Collie WA 6225

AVIATION PROJECTS

B	GENERAL REISSUE	29.11.2023	APC	PJO	
A	ORIGINAL ISSUE	31.10.2023	APC	PJO	
REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
1	2	3	4	5	6



STATUS
FOR INFORMATION
AERODROME PLANNING
PROJECT PLANNING
WIND SHEAR TRIGGER ASSESSMENT

DRAWING No.
E22099-06-YCOI-DRG-1127

REVISION
B



AVIATION PROJECTS

Aviation. From the ground up.



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