AVIATION PROJECTS

KEMPSEY Shire Council

Australia's leading airport advisers and aerodrome safeguarding specialists

Airport Master Plan 2042

KEMPSEY AIRPORT

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ACKNOWLEDGEMENT OF TRADITIONAL OWNERS

Kempsey Shire Council acknowledges the land of the Thunggutti/Dunghutti Nation. We pay respect to Elders past and present. We acknowledge the role of emerging leaders to continue to guide us in the future. We acknowledge the Stolen Generations and the need to change practices to be inclusive. This land always was and always will be Thunggutti/Dunghutti land.

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1. PLANNING CONTEXT

1.1. Background

Kempsey Airport is a community asset owned and operated by the Kempsey Shire Council (KSC) located 6 km west of the Kempsey CBD. As a certified aerodrome, KSC is obliged to maintain compliance of the Airport with the Civil Aviation Safety Authority (CASA) Manual of Standards Part 139 (MOS 139).

The Kempsey Shire is located on the Mid North Coast of New South Wales, approximately 430 km north of Sydney CBD and 488 km south of the Brisbane CBD. Kempsey Shire covers a wide geographic area of approximately 3,381 sq km encompassing the Macleay Valley which follows the Macleay River from its ocean entry point near Southwest Rocks for 70 km inland.

According to the Australian Bureau of Statistics, Kempsey Shire has a population of 30,816 (2021).

The airport supports general aviation charter, training, maintenance and recreational flying activities and plays a key role in supporting aerial firefighting, aeromedical and other emergency service aviation activities for the region.

The location of Kempsey Airport within the Kempsey Shire Council LGA boundary is shown in the map at Figure 1.

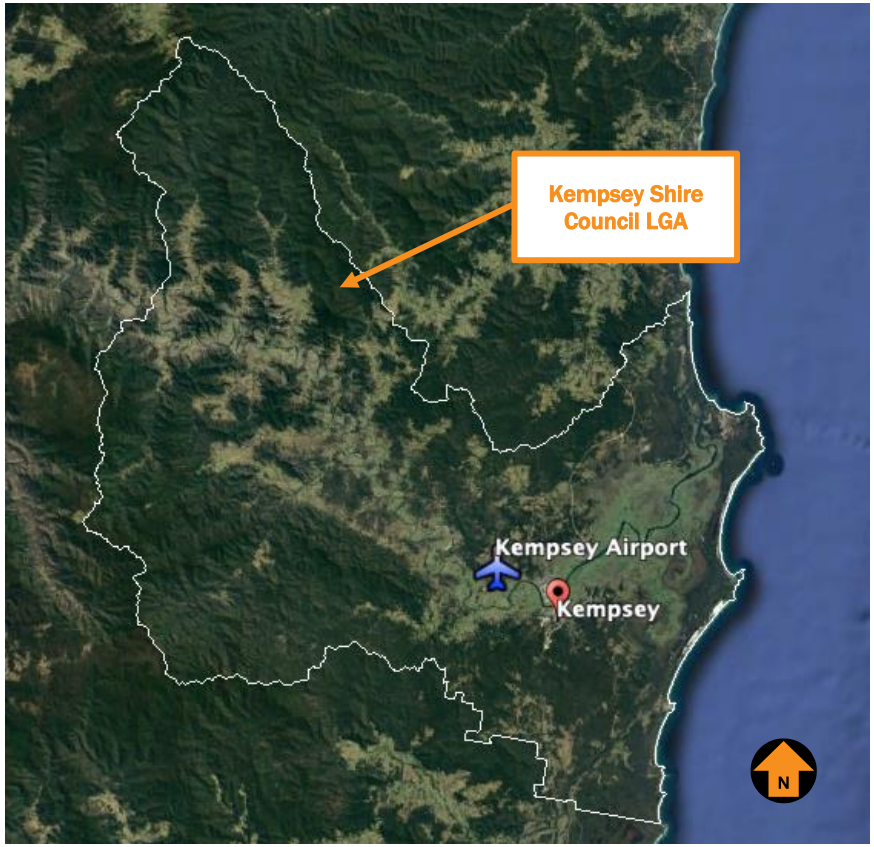


Figure 1. Kempsey Airport within the Kempsey Shire

1.2. Site description

Kempsey Airport is a Code 2 non precision approach certified aerodrome with a sealed runway 04/22 that is 1643 m long and 30 m wide. The runway allows for operations by aircraft up to Code C, such as the SAAB 340, Dash 8 200 and 300 series.

The airport is located to the west of the town of Kempsey in the New South Wales Mid North Coast. A location diagram is provided in Figure 2 (source: Google Earth):

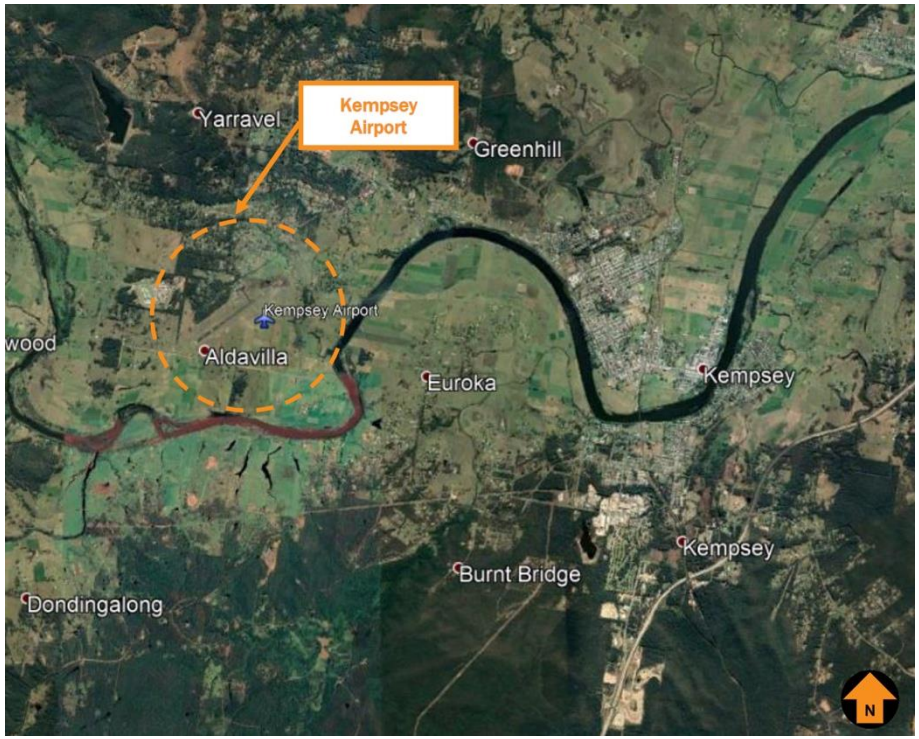


Figure 2. Kempsey Airport in relation to Kempsey township

An overview of the airport site is shown in Figure 3 (source: Google Earth).

Figure 3. Kempsey Airport site

1.3. Regional characteristics

Characteristics of the region are set out in this section.

Population

Kempsey Shire has a population of 30,816 people (2021 Census). With an average age of 47, Kempsey Shire has a higher percentage of empty nesters, retirees and seniors than the NSW average and a lower percentage of parents, homebuilders and young workforce. Population growth between 2016 and 2021 averaged 1.22% per year over the period, and 0,9% in 2021 which is consistent with general NSW growth rates.

The population is forecast to grow to 34,148 by 2036 (source: .id), an average growth rate of approximately 0.85% per annum.

Economy

Kempsey Shire has a diverse economic base in manufacturing, construction, education healthcare, agribusiness and tourism, employing 10,033 residents and generating a gross regional product value of $1.10 billion as of 30 June 2021 (source: .id).

The Macleay Valley Economic Development and Tourism Strategy provides a snapshot of the region's economy. At the time of publishing, the Macleay Valley had a total of 2,240 registered businesses dominated by agriculture, forestry and fishing (629), construction (365), rental hiring and real estate services (149) and retailing (145). The key employment sectors in the Macleay Valley include health care and social assistance, retail trade, education and training, and accommodation and food services (tourism).

Climate and Meteorology

The NSW Government Office of Environment and Heritage 'North Coast Climate change snapshot' provides the following general description of temperatures and rainfall for the region.

> *Summers are warm across the region, with cool winters in the foothills and along the Great Dividing Range. In summer, average temperatures range from 16–18 °C along the mountains to 24–26 °C north of Grafton. In winter, temperatures range from 4–6 °C along the mountains to 14–16 °C along the far north coast. Average maximum temperatures during summer range from 30–32 °C near Casino to 20–22 °C in the mountains. In winter, the minimum temperature ranges from 0–2 °C along parts of the Great Dividing Range to 10–12 °C on the far north coast.*
>
> *Rainfall varies significantly over the region, with average annual rainfall ranging from over 1600 mm on parts of the far north coast to 800–1200 mm along parts of the Great Dividing Range. Along the southern and central parts of the coast, annual rainfall is typically 1200–1600 mm. Rainfall generally decreases as you move away from the coast. Rainfall is very seasonal with much more rain falling in summer than winter. During summer, the North Coast experiences 400–600 mm of rainfall, with some areas receiving over 600 mm. During winter, much of the region sees 100–200 mm, and on average 200–300 mm along the coast.*

Kempsey CBD is prone to flooding during high rainfall events due to its location in the Macleay River floodplain. For Kempsey Airport, with an aerodrome elevation of 54 ft above mean sea level (AMSL), pavements, hangars and neighbouring buildings have not been affected by flooding, but grass aircraft parking areas on the northern side of the runway can become too soft for aircraft parking and airport land on the southern side of the runway is prone to becoming waterlogged. Southern road access to the airport can be cut off when creek levels flood over Old Aerodrome Road. Figure 4 shows typical waterlogged drainage area land on the southern side of the runway.

Figure 4. Waterlogged drainage areas south of the runway

Regional aviation

Kempsey Airport is situated between the NSW regional coastal centre airports of Coffs Harbour, located approximately 90 km to the north, and Port Macquarie located approximately 50 km to the south. Taree is located approximately 90 km to the south.

Coffs Harbour is one of the largest and busiest regional airports in NSW, serviced by Qantas, Rex and Link Airways providing passenger services to Brisbane, Sydney and other regional hubs. A general aviation precinct supports various commercial aviation maintenance and training organisations and a large Airport Enterprise Park subdivision catering to general business and other aviation related enterprises is under development.

Port Macquarie Airport is serviced by Qantas, Rex, Fly Pelican and Eastern Air Services providing passenger services to Sydney, Brisbane, Canberra and Lord Howe Island, with direct flights to Melbourne and Sunshine Coast due to commence with Bonza Airlines. A busy general aviation facility accommodates maintenance, training, freight and charter operators as well as catering to private and recreational flying.

Taree Airport has similar types of operations to Kempsey Airport, accommodating emergency services, aeromedical flights and catering to commercial and private general aviation operations. Taree also has a small aviation business park catering to aviation engineering and manufacturing businesses and Fly Pelican provide a passenger service to and from Sydney Airport.

By contrast, Kempsey Airport does not have any airline passenger services and primarily accommodates aeromedical flights and NSW Fire Service operations and supports a small general aviation group of maintenance, charter, flying training and recreational flying organisations.

Kempsey Airport's location in relation to the certified regional airports of Coffs Harbour, Port Macquarie and Taree is shown in Figure 5.

Figure 5. Kempsey Airport in relation to other certified regional airports

1.4. Role and history

The Kempsey Airport site was first approved for development as an aerodrome by the Department of Defence in 1930 and officially opened in 1936.

The first passenger services between Kempsey and Sydney were started in the 1950s by Butler Air Transport Ltd.

The aerodrome was reconstructed and expanded in 1953 with the first sealed runway in 1958 and was capable of all-weather operations.

In 1970 Kempsey Airport was taken over from the Commonwealth government by Macleay River County Council.

In 1986 the airport completed a navigation aid and lighting upgrade and became fully operational for night flying.

Between 2018 to 2020 the Australian International Aviation College (AIAC) conducted large scale training operations for international airline student pilots at Kempsey Airport, with an intention to develop a permanent training facility at the airport, however community opposition and an industry downturn due to the Covid 19 pandemic eventually resulted in these plans being abandoned.

Plans to establish a Recreation and Adventure Park at the airport to support skydiving and rock climbing sports were announced in 2020 and planning continues.

The airport fuel facility was relocated in 2017.

The cross runway 16/34 was closed in 2021.

Pavement rehabilitation and drainage works to the apron and taxiways was undertaken between August and November 2022.

1.5. Current operations

Current aircraft operations primarily include:

- Aeromedical flights operated by the Royal Flying Doctor Service, NSW Ambulance Services, CareFlight and AeroMed/SkillMed.
- Emergency services aircraft operated by NSW Ambulance, Police and Fire and Rescue NSW
- General aviation turboprop and business jet aircraft operating for business, private flying and maintenance
- General aviation light aircraft twin and single engine piston aircraft conducting private, charter and training flights
- General aviation helicopters conducting private, charter and training flights
- Recreational light sport aircraft conducting private and training flights.

Figure 6. Typical light aircraft at Kempsey Airport

1.6. Strategic intent

Kempsey Shire Council intends to ensure that the Kempsey Airport is appropriately positioned to deliver the positive social and economic benefits associated with the region.

The key objectives for Kempsey Airport are:

- Maintaining the ability for aircraft to operate safely
- Facilitating the ability for the airport to grow and expand in response to demands
- Promoting the role of the airport and its significance as a community and commercial asset
- Safeguarding the airport's long-term plans and continued aviation operations
- Ensuring compliance with relevant regulations
- Protecting operational airspace through off airport planning provisions
- Ensuring future development takes into consideration noise mitigation measures established through the application of Fly Neighbourly Principles
- Working towards the operation of Kempsey Airport as a financially sustainable stand-alone business operation, through the implementation of revenue maximising commercial opportunities as appropriate.

1.7. Purpose of master planning study

The purpose of the Master Plan is to act as the basis for the timely and coordinated development of aviation facilities and infrastructure, aviation, and non-aviation land use, and for appropriate management of the airport environment.

The master plan provides an overarching vision that is expected to guide in the overall development of the airport over the next 20-years; identify key issues facing the airport; provide concepts or options for addressing these issues; and develop Aircraft Noise Exposure Forecast (ANEF) contours to inform Council's land-use planning instruments.

1.8. Planning horizons

The Master Plan nominally considers a planning horizon of 20 years, comprised of initial, interim, advanced and ultimate development.

Delivery of any individual components within the Master Plan are dependent on funding availability, market demand and the undertaking of a full detailed design process, and may be delayed or accelerated.

1.9. Kempsey Shire Council – 2042 Community Strategic Plan

The 2042 Community Strategic Plan is described as the key strategic planning document for the future of the Kempsey area. The plan aims to identify the priorities and hopes for the entire Shire for the twenty year period to 2042, which aligns with the airport master planning horizon.

The plan outlines focus areas, objectives and strategies for the achievement of aspirational goals and identified performance measures and partners for each process.

Focus areas and objectives applicable to the Kempsey Airport master planning process are summarised in Table 1.

2042 Community Strategic Plan Objective ***What are we working towards?***	***2042 Community Strategic Plan Strategy*** ***How will we get there?***	***Relevance to the Kempsey Airport Master Plan***
Our local economy is strong and provides diverse employment.	*We support each other to create local jobs and career pathways.* *Our businesses can adapt to new and emerging opportunities.* *Proactive planning will make land and services available to support the business sector*	A key Council objective is working toward the operation Kempsey Airport as a financially sustainable stand-alone business. This can only be accomplished by supporting local aviation businesses at the airport to thrive, which will in turn generate local jobs and increased airport revenue streams.
Quality transport and communication infrastructure makes it appealing to live in, work in and visit the Macleay.	*We plan and invest in transport that serves our future needs and growth.* *We actively maintain and improve the roads and bridges network.* *We encourage innovation and connection to a global economy.*	Kempsey Airport should be recognised as an essential community asset, which ensures the region has continual access to emergency and commercial services. Maintenance and development of the airport facility should be planned to ensure the airport remains part of the Shire's quality transport infrastructure.

Table 1. 2042 Community Strategy Plan objectives and strategies

1.10. Kempsey Strategic Asset Management Plan 2022-2032

Kempsey Airport is a listed commercial businesses asset in the Kempsey Shire. The airport is described in the strategic asset management plan as follows:

> *Kempsey Airport is a high-functioning, well-resourced facility located mid-way between Brisbane and Sydney, as well as between the NSW regional centres of Port Macquarie and Coffs Harbour. Kempsey Airport is used for a range of commercial and recreational purposes, including medical and emergency services.*

A general assessment of the costs to maintain Kempsey Airport is described in Section 4.6.1, service Challenges and Mitigations, as follows:

> *Our airport has significant asset renewal costs. The business runs at a sizeable operating deficit, and recent grant funding requires a 50% co-contribution from council. Airport assets are ageing, and regulatory changes require infrastructure upgrades. We are aligning our asset management processes with the annual technical inspection requirements to streamline our budgeting and planning processes. A major risk to our airport is maintaining compliance with changing legislation, as is meeting financial requirements (affordability). Kempsey Airport is due for a runway overlay at significant cost. Upgrades to any infrastructure may trigger a legal requirement for compliance to new MOS Part 139 standards. These risks can be mitigated by renewing and improving infrastructure to keep compliance with grandfathered legislation, conforming with vegetation management requirements, as well as seeking funding through grant applications, and changes to our long-term financial planning.*

Asset service levels are measured in terms of how the community perceives the delivery of the service, using community consultation through surveys, most recently completed in 2020. The Council also assesses the asset condition and projects a 10 year long term financial planning (LTFP) result for expected change to the asset condition assessment based on currently available budgets.

1.11. NSW State Environmental Planning Policy (Transport and Infrastructure) 2021

NSW state development controls allow development for the purpose of an airport by or on behalf of a public authority without consent on specific land use zones, these include RU2 Rural Landscape, which is the zoning applied by the Kempsey Shire Council to Kempsey Airport land.

Development permitted without consent for the purpose of an air transport facility includes construction works and fencing, drainage or vegetation management in connection with an air transport facility.

Development permitted with consent within the boundaries of an existing air transport facility development includes the following:

> *(a) passenger transport facilities,*
>
> *(b) facilities for the receipt, forwarding or storage of freight,*
>
> *(c) hangars for aircraft storage or maintenance,*
>
> *(d) commercial premises,*
>
> *(e) industries,*
>
> *(f) recreation areas, recreation facilities (indoor) or recreation facilities (outdoor),*
>
> *(g) residential accommodation,*
>
> *(h) tourist and visitor accommodation.*

1.12. Kempsey Local Environmental Plan 2013

In the Kempsey Local Environmental Plan 2013, Kempsey Airport is zoned as RU2 Rural Landscape. RU2 Zone Objectives are stated as follows:

Objectives of zone

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To maintain the rural landscape character of the land.*
- *To provide for a range of compatible land uses, including extensive agriculture.*

Within RU2 zoning air transport facilities and airstrips are permitted with consent.

The following provisions are provided for protection of airspace operations and development in areas subject to aircraft noise:

7.7 Airspace operations

(1) The objectives of this clause are as follows—

(a) to provide for the effective and ongoing operation of the Kempsey Airport by ensuring that its operation is not compromised by proposed development that penetrates the Limitation or Operations Surface for that airport,

(b) to protect the community from undue risk from that operation.

(2) If a development application is received and the consent authority is satisfied that the proposed development will penetrate the Limitation or Operations Surface, the consent authority must not grant development consent unless it has consulted with the relevant Commonwealth body about the application.

(3) The consent authority may grant development consent for the development if the relevant Commonwealth body advises that—

(a) the development will penetrate the Limitation or Operations Surface but it has no objection to its construction, or

(b) the development will not penetrate the Limitation or Operations Surface.

(4) The consent authority must not grant development consent for the development if the relevant Commonwealth body advises that the development will penetrate the Limitation or Operations Surface and should not be carried out.

(5) In this clause—

***Limitation or Operations Surface** means the Obstacle Limitation Surface or the Procedures for Air Navigation Services Operations Surface as shown on the Obstacle Limitation Surface Map or the Procedures for Air Navigation Services Operations Surface Map for the Kempsey Airport.*

***relevant Commonwealth body** means the body, under Commonwealth legislation, that is responsible for development approvals for development that penetrates the Limitation or Operations Surface for the Kempsey Airport.*

7.8 Development in areas subject to aircraft noise

(1) The objectives of this clause are as follows—

(a) to prevent certain noise sensitive developments from being located near the Kempsey Airport and its flight paths,

(b) to assist in minimising the impact of aircraft noise from that airport and its flight paths by requiring appropriate noise attenuation measures in noise sensitive buildings,

(c) to ensure that land use and development in the vicinity of that airport do not hinder or have any other adverse impacts on the ongoing, safe and efficient operation of that airport.

(2) This clause applies to development that—

(a) is on land that—

(i) is near the Kempsey Airport, and

(ii) is in an ANEF contour of 20 or greater, and

(b) the consent authority considers is likely to be adversely affected by aircraft noise.

(3) Before determining a development application for development to which this clause applies, the consent authority—

(a) must consider whether the development will result in an increase in the number of dwellings or people affected by aircraft noise, and

(b) must consider the location of the development in relation to the criteria set out in Table 2.1 (Building Site Acceptability Based on ANEF Zones) in AS 2021—2000, and

(c) must be satisfied the development will meet the indoor design sound levels shown in Table 3.3 (Indoor Design Sound Levels for Determination of Aircraft Noise Reduction) in AS 2021—2000.

(4) In this clause—

***ANEF contour** means a noise exposure contour shown as an ANEF contour on the Noise*

Exposure Forecast Contour Map for the Kempsey Airport prepared by the Department of the Commonwealth responsible for airports.

***AS 2021—2000** means AS 2021—2000, Acoustics—Aircraft noise intrusion—Building siting and construction.*

1.13. Kempsey Airport Noise Management Plan and Fly Neighbourly Advice Final Report 2019

Assessment of aircraft noise in 2019 resulted in the Kempsey Airport Noise Management Plan and Fly Neighbourly Advice which outlines strategies and recommendations to address the impact of aircraft noise on the surrounding community.

In proposing appropriate development options for Kempsey Airport, the master plan considers the described noise management policies and compatible aircraft operations.

An ANEF study has been undertaken as part of this master plan – see **Annexure 12.**

1.14. Scope and Limitations

The scope of work for the master planning study involved the following requirements:

- Assessment of the airport's current facilities, land use and operations including both aviation and non-aviation usage
- Analysis the trends affecting the present and future use of the aerodrome with consideration to the social, demographic, and economic opportunities
- Identify aviation and non-aviation opportunities to increase revenue and improve the financial viability of the aerodrome
- Assessment of the current regulatory requirements and their implications on future operations, land use and development
- Through consultation with key stakeholders establish a strategic vision and objectives for the airport
- Approaches to prevent the potential encroachment of incompatible activities and development in the vicinity of the airport.
- Provide recommendations and plans for scheduled future infrastructure requirements (airside and landside) based on expected future growth through to 2042.

1.15. Methodology

The master planning study was conducted generally in accordance with the Australian Airports Association Airport Practice Note 4 - Regional Airport Master Planning Guideline and modified according to the Scope of Work.

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

- Inception meeting and site orientation
- Stakeholder consultation activities including site visits
- Consolidation of stakeholder feedback
- Preparation of concept plans for client endorsement
- Preparation of draft Master Plan including drawings, plans and cost estimates
- Final stakeholder consultation including review of draft Master Plan
- Preparation of final Master Plan for client acceptance.

2. STAKEHOLDER CONSULTATION

A comprehensive stakeholder consultation plan was designed to maximise the opportunity for the local community and aviation stakeholders to provide input to the development of the Master Plan.

2.1. Stakeholder engagement program

Engagement activities conducted during the consultation period 14 July 2022 – 20 October 2022 included:

- face to face interviews
- telephone/online interviews
- email surveys
- council online campaign inviting stakeholder participation.

2.2. Meeting schedule

Aviation Projects conducted face to face meetings at Kempsey Airport on 14 July 2022, and at Kempsey Council Offices on 26 October 2022, 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:

- NSW Rural Fire Service
- Royal Flying Doctor Service
- CareFlight
- NSW Ambulance
- Aero Refuellers
- Save Kempsey Airport Action Group (SKAAG)
- Macleay Aircraft Maintenance
- Hastings Aircraft Maintenance
- Kempsey Flying Club
- Mid Coast Flying
- SportFly
- Microflite
- City and Country Air Charter
- SkillMed
- Aircraft Traders
- Sea Spirit Lifestyle
- Business Park private hangar owners
- Kempsey Sporting Car Club.

2.3. Results of stakeholder consultation

Initial meetings held in July 2022 identified:

- Concerns about the current airport facilities included:
    - Limited remaining hangar sites in Business Park
    - A lack of suitable development sites for commercial hangars
    - Poor drainage in grass aircraft parking areas
    - No landside access to fuel facility results in fuel truck damage to airside pavements

- No landside access to NSW RFS filling tanks and loading areas compromises RFS emergency operations
- Deterioration of existing pavements
- A lack of large aircraft parking locations
- A lack of service amenities (food and beverage outlets etc).

- Concerns raised by some stakeholders regarding airport operations that were outside of the Master Plan Project scope:
  - A need for improved airport user engagement in operational decisions
  - Concerns about landing fees, leasing arrangements and airport policies
  - Concerns about the community impact of inappropriate aircraft operations.

General Themes:

- The following general themes emerged from the initial stakeholder consultation:
  - Stakeholders want to support the growth of Kempsey Airport
  - Kempsey Airport was regarded as having unrealised potential for commercial and private general aviation growth
  - General comments associated with recent changes to landing fees.

A second round of stakeholder consultation meetings held in October 2022 presented the draft master plan layout options and sought feedback from stakeholders. The consensus from these meetings was:

- An emphasis on development of commercial aerospace business (maintenance, repair and supporting services) and provision of additional general aviation hangar options and parking was aligned with the requirements of existing and potential future airport users
- The layout development options presented adequately addressed the airport facilities issues identified in the initial consultation.

Of two final development options presented, one option was unanimously preferred by the stakeholders who were engaged, and this option has been adopted as the basis for the Master Plan.

2.4. Kempsey Airport Master Plan 2042 Public Exhibition

The Airport Master Plan 2042 will be publicly exhibited prior to adoption.

Outcomes from the public exhibition period will be summarised here.

3. SWOT ANALYSIS

A Strengths Weaknesses Opportunities and Threats (SWOT) analysis has been used to identify significant areas for consideration in relation to the Kempsey Airport and its support of KSC's strategic objectives, as detailed in Table 2 and Table 3.

Table 2 Kempsey Airport SWOT analysis – Strengths and Weaknesses

Strengths	*Weaknesses*
• Attractive local environment • Plenty of available land for development • Availability of Avgas & Jet A1 • Runway length suits large aircraft • No airspace restrictions • Established RNAV Approaches • Potential interest in the airport from private and commercial users	• Poor pavement condition / Inadequate PCN for large aircraft access and parking • Poor fuel supply location • Lack of commercial hangar space on main apron • Business Park development has limited remaining hangar sites • Soft grass parking surfaces, poor drainage • Limited itinerant parking • Port Macquarie and Coffs Harbour Airports close by offering additional services and scale, with larger population catchments • Road access to site on north side, through residential narrow road in poor condition • South road flood prone • No air transport passenger services • Low current level of viable aviation businesses • Taxiway D is not compliant with current MOS 139 standards • Airport is not centrally located near Pacific Highway nor popular tourist sites.

Table 3 Kempsey Airport SWOT analysis – Opportunities and Threats

Opportunities	*Threats*
• Kempsey Airport is an underutilised, quiet site with good aircraft access and space to grow. Potential to attract business from other airports with the right incentives • Existing users want the airport to succeed. Could be a strong support to Council to market and promote airport if administration, communication and policy issues can be resolved • Opportunity to revitalise the local airport aviation community, attract pilots and aircraft to drive growth of aviation business • Opportunity to support the growth of existing business customers leading to increase in aircraft traffic, which will provide a catalyst for new complementary business • Adventure Park project can be a catalyst to attract complementary non-aviation business and support aviation growth	• Susceptibility to flooding impacts external road access and airside development potential of site south of the runway • CASA may revoke grandfather provision for non-compliant infrastructure in the future • Aircraft noise impact on the community • Competition from Coffs Harbour and Port Macquarie to attract aerospace business • Lack of funding to maintain and develop airport infrastructure

4. EXISTING AERODROME FACILITIES

4.1. Aeronautical infrastructure

Kempsey Airport is equipped with the aeronautical infrastructure described in this section.

Runway 04/22: 1643 m x 30 m (90 m runway strip) sealed
PCN 14/F/B/1500 (218PSI)/T

Note: the pavement classification number (PCN) is expressed as a five-part code, separated by forward-slashes, describing the relevant pavement.

Declared distances are provided in Table 4 (source: Airservices Australia, 09 September 2021).

Table 4. Runway declared distances

Runway	*TORA*	*TODA*	*ASDA*	*LDA*
04	1643	1703 (2.4%)	1643	1643
22	1643	1703 (4%)	1643	1643

Note the acronyms used are defined as: take-off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA) and landing distance available (LDA).

Figure 7 shows Kempsey runway 04/22 (source: Airservices Australia, 01 December 2022).

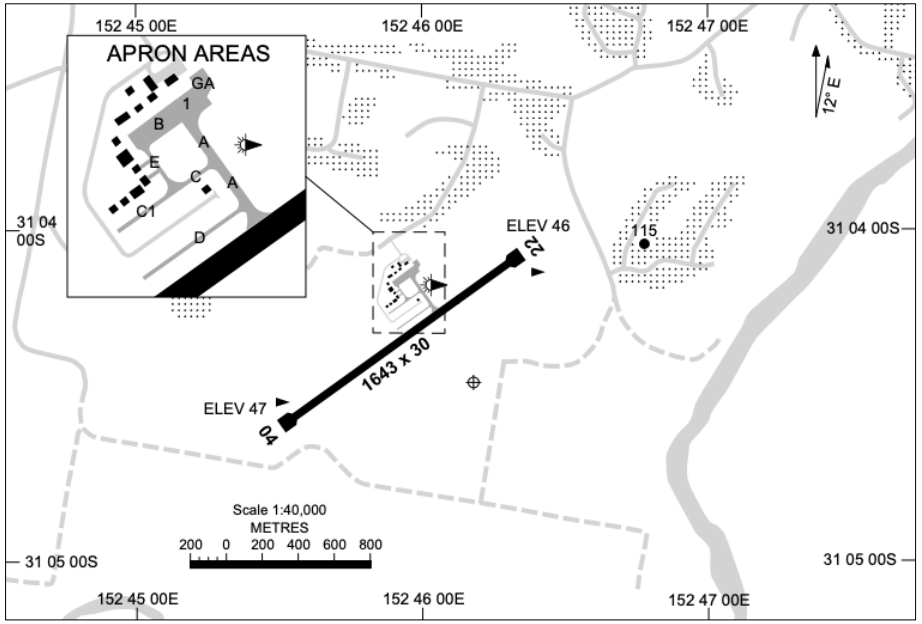


Figure 7. Kempsey Airport runway 04/22

An image of runway 04, looking north-east from the take-off position, is provided at Figure 8.

Figure 8. Runway 04

An image of runway 22, looking south-west from the take-off position, is provided at Figure 9.

Figure 9. Runway 22

The main parking apron is located adjacent to the passenger terminal and can accommodate a single code C aircraft on the main parking position.

A code A taxiway complex services the Kempsey Business Park, which contains leased hangar sites.

An aerial view of the terminal precinct showing the current configuration of the parking apron and taxiway is provided at Figure 10 (source: Google Earth).

Figure 10. Terminal precinct - aerial view

4.2. Support facilities

The airport has basic support facilities and is not equipped with any ground based navigational facilities. The airport is served by satellite-based navigation procedures.

The airport is located outside controlled airspace and has a common traffic advisory frequency (CTAF).

There is no air traffic control tower service.

There is no aerodrome rescue and firefighting service (ARFFS).

Onsite fuel (both Jet A1 and Avgas) is self-service only. Jet A1 is via under and over wing.

Access to the fuel facility requires airside access.

An image of the refuelling facility is provided at Figure 11.

Figure 11. Refuelling facilities

A perimeter fence encloses the airside area of Kempsey Airport, and the boundary is clearly marked with signage. Airside access for Kempsey Airport is via gates surrounding the airside and landside boundary.

4.3. Landside development

Landside facilities include a passenger terminal with carpark.

An image of terminal is provided at Figure 12.

Figure 12. Kempsey airport terminal

4.4. Aerodrome lighting

An upgraded Airport Frequency Response Unit and Pilot Activated Lighting System (ARFU+PAL) has been installed.

The aeronautical ground lighting facilities are satisfactory for the intended operations, but compliance is contingent upon certain grandfathered provisions (see Section 4.10). Further upgrade to the lighting system is planned as part of future runway refurbishment, subject to available funding.

4.5. Navigation and approach aids

Current navigational facilities (GPS only) are satisfactory for current and future needs.

4.6. Weather information service

An aerodrome weather information service (AWIS) is provided as Kempsey Airport which broadcasts automatic weather station observations.

Weather forecasts are not provided.

4.7. Aerodrome rescue and firefighting services

There is no expectation of a need for ARFFS within the master planning period.

4.8. Ground transport

External network:

Access to the main airport precinct is via Airport Road. Access to the southern side of the airport is via Old Aerodrome Road. The external road network is not considered adequate for the master planning horizon.

Airport Road passes through a suburban area and the road width and condition is marginal for heavy road traffic such as aviation fuel delivery trucks and fire service water tankers required to use this access to the airport.

Old Aerodrome Road, which will service the proposed adventure recreation park has a creek crossing known to flood and become impassable during local flooding events.

The roads into the airport are pictured at Figure 13.

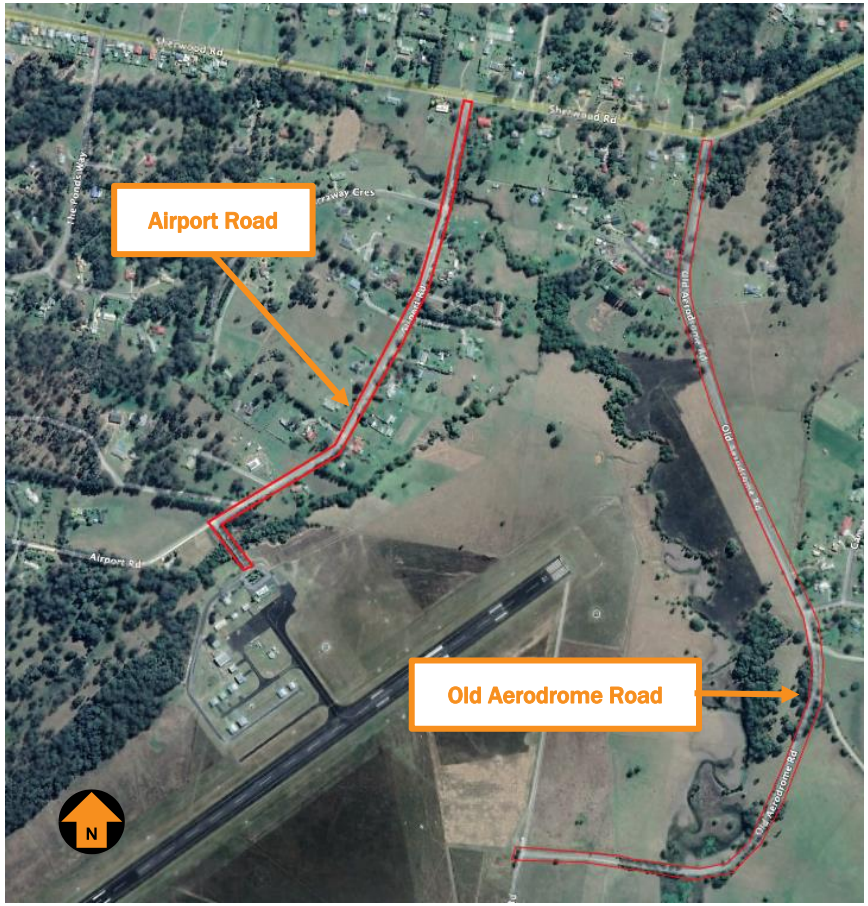


Figure 13. Entry roads to airport

Internal network:

The internal road network services the existing business park and is adequate for current operations. Additional internal roads will need to be constructed to service proposed aerospace and second general aviation precincts.

Airside access:

Airside access is considered adequate.

Public transportation:

Public transportation connections to Kempsey Airport include a bus route and Kempsey Taxi services. There are no dedicated rental car services provided at Kempsey Airport and these are not currently required as there are no scheduled passenger services.

Car parking:

There is one main car park area adjacent to the existing passenger terminal building with several marked car parking spaces available at no charge. Roadside parking space is available adjacent to business park hangars. Additional car parking will need to be provided with proposed aerospace and second general aviation precincts.

4.9. Utilities and civil infrastructure

Water:

Town water is provided to the airport site.

Electricity:

The airport is connected to the main power grid.

Sewer:

The airport is connected to an On-site Wastewater Management System with connection to main sewer services planned as part of construction of an additional sewer line to service the adventure recreation park area south of the runway.

Communication:

Telephone services are provided to the airport site. Mobile phone coverage is marginal.

Stormwater:

Stormwater run-off is managed onsite. Drainage in grass parking areas is marginal and these areas can become unserviceable.

Perimeter fencing:

The perimeter fence is made up of a landside/ airside boundary fence around the currently developed terminal and business park area which connects to property perimeter fencing. The property perimeter fencing is considered inadequate, and a wildlife hazard exists at the airport. Installation of an upgraded wildlife fence is currently in planning.

4.10. Grandfathered facilities

CASA allows certain airport facilities that have been previously constructed in compliance with regulatory standards that have since been amended, to be maintained in accordance with the requirements of the previous standard, even though they are not compliant with the new standard. These facilities are referred to as being 'grandfathered facilities' and are noted in the aerodrome manual.

The following Kempsey Airport facilities rely on grandfathered provisions:

- The Kempsey Airport runway strip for RWY 04/22 has an overall width of 90m, which complied with a previous standard but does not comply with the current standard requiring a 140 m runway strip width for a Code 2 instrument non-precision runway. The associated obstacle limitation surfaces established for RWY 04/22 are based on the 90m runway strip width. The RWY 04/22 approach inner edge, runway strip width and transitional surface do not comply with the current standards.
- The 60 m runway end safety area (RESA) is located within the runway strip and does not comply with current standards requiring the RESA to be at the end of the runway strip
- Taxiway (TWY) shoulders have not been constructed for TWY A
- Illuminance of apron floodlighting do not meet the lux level requirements of current standards
- Airside lighting cable and transformers are directly buried instead of being pit and ducted as required in current standards
- RWY 04/22 edge lighting has longitudinal spacing of 90m instead of 60 m required by current standards.

5. DEMAND

5.1. Traffic Model

There are no scheduled air transport passenger services at Kempsey Airport, nor current discussions regarding future services.

The Kempsey regional population accesses nearby Coffs Harbour and Port Macquarie Airports for air transport passenger service requirements.

The disposition of air traffic at Kempsey Airport consists primarily of:

- Aeromedical turboprop aircraft
- Commercial and private turboprop and light jet aircraft
- General Aviation commercial and private piston single and twin engine aircraft
- Recreational Aviation Australia Light Sport Aircraft
- Emergency services aircraft
- Commercial and private helicopters.

5.2. Current aircraft movement

An analysis of five years of movement data for Kempsey Airport, from October 2017 to October 2022, forms the basis of the future demand forecast used in this master plan. In the context of this report a movement is defined as either an aircraft landing or a take-off.

Between 2014 and 2020 the Australian International Aviation College (AIAC) based in Port Macquarie utilised Kempsey Airport for high volume circuit training. During this period, the AIAC aircraft movement data was highly disproportional to the remainder of the airport aircraft movement data. As AIAC has now permanently ceased high volume operations at Kempsey Airport, the AIAC movement data has not been included in the analysis and forecast demand calculations.

Kempsey Airport provides an important role as a base of operations for emergency service aircraft during NSW bush fire events. The frequency and severity of these events varies from year to year depending on climatic conditions. During major fire events the NSW Rural Fire Service deploys aerial fire-fighting helicopter and fixed wing aircraft to conduct firefighting operations. These short term deployments of large numbers of aircraft create disproportional peaks in aircraft movement data when compared to average aircraft movements.

Aircraft movements attributed to normal aircraft operations are expected to grow at compounding rates, whereas aircraft movements attributed to major fire events are expected to remain at a similar level over time.

To provide a realistic baseline for future growth calculations, average annual movement rates for the five year period have first been calculated, excluding additional movements attributed to large scale fire-fighting events. These annual averages have then been compounded at various growth rates over the 20 year planning period.

5 years historical annual aircraft movements for Kempsey Airport, excluding additional aircraft movements due to major firefighting events, are shown in Figure 14. Total movements are shown for each 12-month period from October to October (e.g., 12 months to October 2018 is shown as 2018-10).

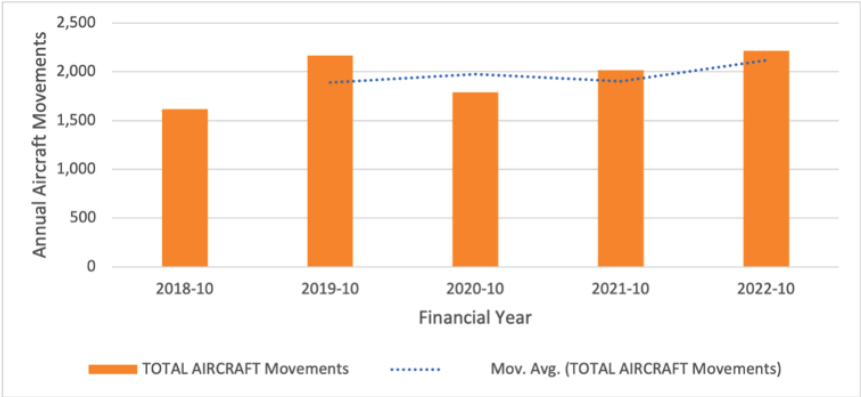


Figure 14. Kempsey Airport five-year historical annual aircraft movements

To arrive at the 20 year peak annual forecast movements, the equivalent annual aerial firefighting aircraft movements expected in a single large scale fire event, which is based on the largest events experienced historically at Kempsey Airport, is then added to the 20 year compounded average.

For Kempsey Airport in the five year historical period the largest annual deployments of fixed wing and helicopter aircraft attributed to aerial firefighting activities resulted in an additional 161 fixed wing and 575 helicopter movements.

5.3. Forecast aircraft movements demand

Aircraft traffic growth rates for air traffic at Kempsey Airport have been modelled at 1%, 3% and 5%, per annum, representing low, mid and high growth rate scenarios, with the 3% mid-level growth rate being adopted for general planning of facilities and ANEF noise modelling.

Kempsey Shire population growth between 2016 and 2021 averaged 1.22% per year over the period, and 0.9% in 2021, which is consistent with general NSW growth rates. A correlation between population growth and airport air traffic movements is often used as a basis for forecasting, however this is usually related to growth in air transport passenger services which are not currently provided at Kempsey Airport and unlikely to be re-introduced within the 20 year master planning period. Therefore, population growth is not considered to be a significant factor in predicting Kempsey Airport aircraft traffic movement growth.

Growth in aircraft movement rates at Kempsey Airport is primarily expected to occur as a result of, and to the extent of, any increase in commercial aviation business activity and recreational general aviation activity. As noted in this master plan, there is potential for Kempsey Airport to position itself as an aviation aerospace hub catering to aircraft maintenance, advanced air mobility and associated service businesses. There is also potential for growth in general aviation charter and training services, and a growing recreational aviation community.

Skydiving aircraft movements associated with the proposed adventure recreation park have been included based on estimates provided for the adventure park development application and it is understood that these estimates for ultimate skydiving development have been benchmarked against other drop zones with similar expected activity. The basis for these estimates was 170 Cessna Caravan C208 flights and 20 Cessna C182 flights per month resulting in 4560 additional movements per year. This figure has been added to the 20-year forecast movements based on other aircraft annualised growth and fire event movements.

The 3% per annum forecast growth rate that has been adopted for this master plan assumes the Kempsey Shire Council will actively market the airport, provide an attractive environment for business growth, and is prepared to provide new facilities in accordance with the master plan in line with demand.

20 year forecast traffic movement calculations are stated in total movements. Calculations are shown in Table 5.

Table 5. Forecast peak annual aircraft movements

Traffic Forecast Conditions	*Annual aircraft movements excluding a major fire event*	*Annual aircraft movements with a major fire event*	*Annual aircraft movements with ultimate skydiving activity*
Historic 5 year average	1961	(+736)	(+4560)
20 year forecast (1% p.a. low growth)	2394	3130	7690
20 year forecast (3% p.a. mid growth)	**3540**	**4276**	**8836**
20 year forecast (5% p.a. high growth)	5202	5938	10498

The historical averages for breakdown of the aircraft movement data into general aircraft categories, is shown in Table 6.

Table 6. Breakdown of aircraft movements into categories

Aircraft Category	*Percentage of total aircraft movements*
Heavy fixed wing (turboprop, light jet)	9%
Light GA fixed wing (piston twin engine)	9%
Light GA fixed wing (piston single engine)	64%
RAAus Light Sport Aircraft	14%
Helicopters	4%

6. DEVELOPMENT OPTIONS

A study was conducted to consider, at a high level, what options might exist for improving business activity at the airport and contributing to increased airport revenue and viability as a stand-alone business.

6.1. Passenger transport services

Scheduled passenger services are not currently provided by any airline at Kempsey airport. Insufficient demand and the availability of scheduled services from nearby Port Macquarie and Coffs Harbour Airports indicates there is a low probability of scheduled airline services resuming at Kempsey Airport within the master plan 20 year horizon.

The Council has indicated a preference to redevelop the old terminal site for commercial hangar use, however, provision for retaining Code C aircraft access to the main apron will be maintained in case of future requirements. There is potential for the adventure recreation park facility planned for construction on the southern side of the runway to fulfill a dual role providing terminal services if a future demand arises.

6.2. Airpark development

Airpark developments where airport land is subdivided and sold for residential development of houses with hangars and direct runway access catering to people with aviation interests is a popular development option considered at many small airports.

For Kempsey Airport this type of development was not considered suitable for the following reasons:

- Kempsey Shire Council has adopted the policy not to sub-divide and sell airport land
- Developing available land for aerospace hub and general aviation precincts was regarded as providing higher potential for commercial benefit.

6.3. Aerospace Hub development

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

Across Australia, the largest number of aircraft manufacturing and repair service businesses are in NSW (32%), followed by Queensland (30%) and Victoria (19%).

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 has driven a demand for suitable alternative regional locations to base small to medium aircraft manufacturing and repair businesses.

[1] Australia's Aerospace Industry Capability – KPMG report 2019

Close regional airports such as Port Macquarie and Coffs Harbour have successfully developed commercial precincts catering to these types of businesses but have limited capacity for future expansion.

Kempsey Airport by contrast has an abundance of undeveloped land suitable for commercial aviation precinct development, has a good runway facility capable of accepting large aircraft, and low air traffic movements. With good marketing and facility planning there is potential for Kempsey to position itself as a desirable aerospace hub location.

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

6.4. General aviation precinct

Light general aviation single and twin engine aircraft movements account for 73% of the current traffic movements at Kempsey Airport. The airport is a popular location 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 account for an additional 14% of the total aircraft movements.

The Kempsey Airport Business Park has provided a limited number of leased hangar sites but has reached its development capacity and there are limited sealed external aircraft parking areas. Grass parking is abundant, however drainage and waterlogging issues limit access during wet weather events.

Airport revenue through parking, hangar lease and landing fees for general aviation movements is a primary income source for the majority of small to medium sized regional airports. Providing suitable facilities and favourable financial incentives to attract private owners and commercial charter, flying training and recreational businesses has the potential to drive a significant amount of growth at Kempsey Airport.

The master plan addresses these requirements through the planning of suitable locations for additional aircraft parking and hangar infrastructure and a second general aviation precinct development.

6.5. Emergency services support

Kempsey Airport is a strategic location for Fire and Rescue NSW (RFS) aerial firefighting deployment and serves as a base of operations for rotary and fixed wing aerial firefighting aircraft during significant bushfire events in the NSW mid north Coast region.

RFS currently maintains a small portable equipment container at the airport and water and firefighting medium storage tanks are located at an airside temporary aircraft loading area.

There is an immediate requirement for an improved RFS airside facility with landside access and better storage facilities, and in the long term there is potential for the development of a permanent RFS facility and possibly a dedicated Emergency Operations Centre (EOC) at the airport.

The Royal Flying Doctor Service (RFDS) and CareFlight operate aeromedical services to Kempsey on a regular basis and are an essential part of Kempsey Shire's emergency services capability. Improved facilities for ambulance parking and patient landside to airside transfer are required. In January 2023, Kempsey Shire Council was successful in receiving funding to rehabilitate the runway, drainage, upgrade lighting and for the construction of an Airside Ambulance shelter.

The master plan addresses these requirements through the planning of a new temporary RFS operational area which can be developed into a permanent airside operational facility and landside EOC, and the provision of a new airport operations building and ambulance shelter facility adjacent to the main carpark airside access point.

6.6. Macleay Valley Adventure Recreation Park

The southern side of the airport has been reserved for the planned development of the Macleay Valley Adventure Recreation Park, which will support skydiving and rock climbing sporting events. Airside access is planned for skydiving aircraft.

This project was approved and the planning underway prior to the commencement of the master planning process, therefore the master plan has preserved the location for this purpose without providing any additional design input.

6.7. Non-aviation activities

Utilisation of airport land for non-aviation purposes is a common option for revenue generating developments at airports where such developments will not constrain airport operations.

Kempsey Airport has a large portion of land within the airport boundary but outside of the secured airside area south and east of Old Aerodrome Road that could be considered for non-aviation uses.

Currently there is interest from Kempsey Sporting Car Club to host Khanacross motorsport events on airport land and this location would be suitable. The area is also suitable for hosting of show events.

Due to susceptibility to flooding the area is less suitable for development of permanent infrastructure.

7. PLANNING CONSIDERATIONS

7.1. Planning constraints

Several planning constraints have an impact on what can be considered viable development at Kempsey Airport. These constraints include:

1. Cost of development. The airport currently generates minimal income. Development funding is primarily from government grants. Any development must minimise initial cost and be designed to be expandable in line with demand. Large scale "build it and they will come" is not a sensible strategy.
2. Airport Location. Aviation services already available at Port Macquarie, Coffs Harbour and Taree will compete with any planned development at Kempsey Airport. Development needs to be of a realistic scale.
3. Noise Sensitivity. The level and types of aviation activity at Kempsey Airport must remain compliant with the published Kempsey Airport Noise Management Plan (NMP) and Fly Neighbourly Advice (FNA).

7.2. Design constraints

Several design constraints have an impact on what can be considered viable development at Kempsey Airport. These constraints include:

1. A runway strip and OLS which are non-compliant with recent changes to CASA MOS 139 standards. Grandfather provisions currently allowed by CASA are not guaranteed and may change in the future. See Figure 15.
2. The requirement for any new developments and facility upgrades to comply with new CASA MOS 139 standards. A transitional surface which complies with the new standards will restrict previously planned development close to the runway. See Figure 16.
3. Building wake turbulence assessment provisions, which potentially restrict development in the narrow areas adjacent to the runways and within 500 m of the thresholds. 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. 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*. See Figure 17.
4. The need to preserve Code C taxiway strip width and clearance provisions for TWY A and the Code C turnaround area. See Figure 18.

Figure 15. Changes to MOS 139 runway strip width standards

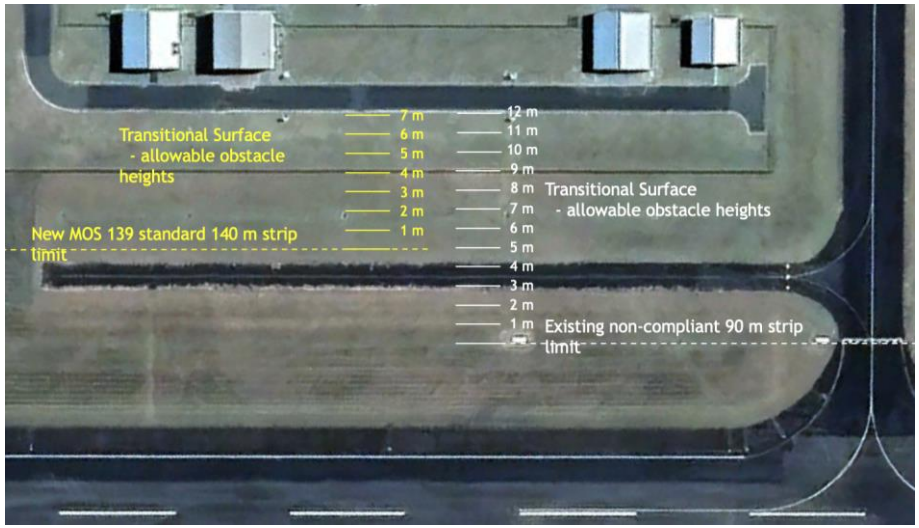


Figure 16. Changes to transitional surface - new MOS 139 runway strip standards

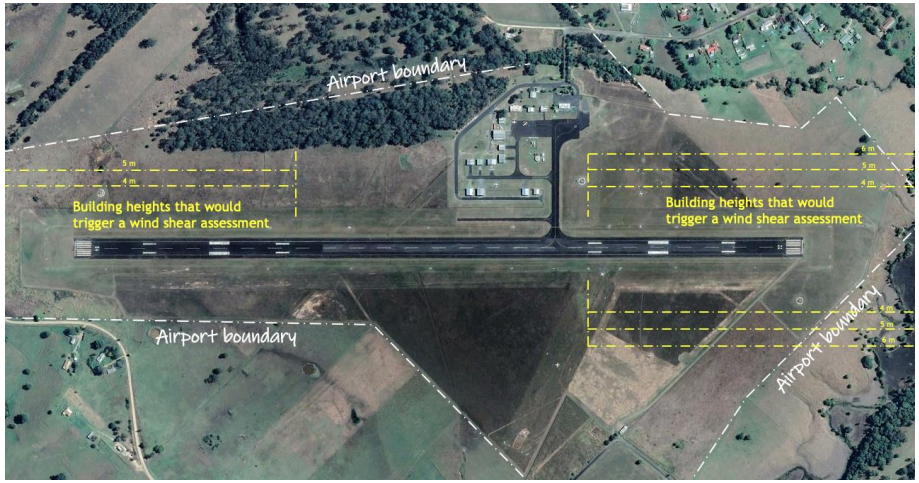


Figure 17. Building heights that would trigger a wind shear assessment

Figure 18. Code C Taxiway clearances for TWY A and turnaround

7.3. Civil Aviation Safety Regulations

Current and future operations at Kempsey Airport are regulated according to the requirements set out in:

- Civil Aviation Safety Regulation 1998 (CASR) Part 139—Aerodromes describes the requirements for aerodromes used in air transport operations.
- Manual of Standards Part 139—*Aerodromes* (MOS 139) sets out the standards and operating procedures for certified aerodromes used in air transport operations. The current MOS 139 came into effect on 13 August 2020.

7.4. Aerodrome Reference Code

The standards which an aerodrome facility must meet to be suitable for use by aeroplanes within a particular range of performance and size are determined by the aerodrome reference code (ARC) chosen by the aerodrome operator.

The ARC is made up of 3 elements:

a. a code number determined by the aeroplane reference field length (code number or runway code number); and

b. a code letter determined by the aeroplane wingspan (code letter); and

c. the outer main gear wheel span (OMGWS).

As the main runway 04/22 at Kempsey Airport is nominated as a code 2 and the relevant wingspan of aircraft using the airport is a code letter C, the airport is considered a code 2C with non-precision instrument approaches and has a reference OMGWS of 6 m up to but not including 9m.

7.5. Viable development

After extensive consultation the following areas of business development were identified as being the most viable for Kempsey Airport:

- Development of facilities to cater to potential **Aerospace** interests including:
  - Traditional CASR Part 145 aircraft maintenance organisations
  - Specialist aircraft manufacture and repair organisations
  - Emerging advanced air mobility aircraft research and manufacture
- Development of facilities to cater to **General Aviation** interests including:
  - Traditional GA charter and small scale flying training organisations
  - Recreational GA/RAA owners
- Development of facilities to support **Emergency Services** including:
  - RFS
  - Aeromedical Services
- Development of facilities to support **Other** complementary activities including:
  - Recreational skydiving (MV-ARP Project)
  - Non-aviation events and activities.

7.6. Facility requirements

To cater to identified viable development the following specific facility requirements were identified:

- Code B apron and taxiway development to cater to large commercial aerospace hangars
- Additional sealed and unsealed aircraft parking areas
- Provision for additional GA private hangar developments
- Relocated fuel facilities
- Relocated RFS facilities.

7.7. Development zones

In assessing development options at Kempsey Airport five primary development zones have been defined as follows:

1. The existing apron and taxiway development north of the runway
2. The undeveloped area to the northeast of the existing development
3. The undeveloped area to the southwest of the existing development
4. The undeveloped area south of the runway within the airside fence excluding the drainage zone and runway strip area south of RWY04 threshold
5. The undeveloped area south of the runway outside of the airside fence.

The five development zones are shown in Figure 19.

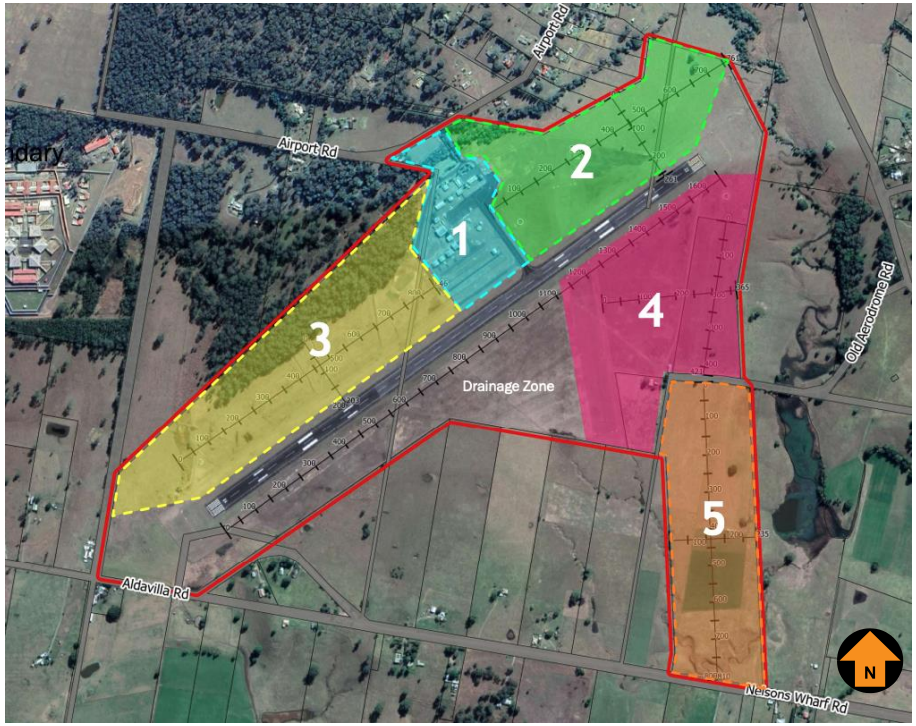


Figure 19. Kempsey Airport defined development zones

7.8. Aerospace facility development

To cater to CASR Part 145 maintenance organisations and supporting commercial businesses, aircraft manufacture and repair and emerging aircraft technology interests of a scale suitable for Kempsey Airport, the primary requirements are:

- Provision of adequate sealed Code B taxiway and apron parking in proximity to large hangar development sites (typical 25m x 35m hangar development)
- Convenient access to the runway
- Separation from private general aviation activity.

Potential development areas for aerospace activity were considered and discussed with Council in Zones 1, 2 and 3.

It was agreed that the most practical and cost-effective development for these types of facilities will be to utilise the existing Code C large aircraft taxiway access and develop Code B taxiway and apron facilities east and west of TWY A in line with the existing main apron and TWY B.

Initial development would commence where the current terminal is located and expand to the east into Zone 2. Redevelopment of the TWY B and the existing hangar developments from Hangar 1 through 5 for additional aerospace purposes could take place at a later stage in line with existing hangar lease agreements allowing opportunity to redevelop the old hangar sites. Hangars 1 to 5 are subject to existing leases and any future development in this area will be managed in accordance with these lease conditions and in consultation with the leaseholders. See Figure 20.

Development in this location can be staged, requiring only modest apron and taxiway expansions and upgrades to be completed in line with demand. New development in Zone 3 was rejected due to the high initial cost of constructing greenfield taxiway and apron facilities without a guarantee of demand, a lack of access to fuel facilities and preferred other uses for Zone 3 which are outlined in the following sections.

Figure 20. Direction of aerospace precinct development

The preferred design for aerospace precinct development is shown in the staged master plan drawings. See Section 10. The design proposed allows for optimum utilisation of available development land while retaining circular traffic flow and provision for future connected development to the northwest, beyond the current master planning horizon. This concept is shown in Figure 21. The design is aspirational and dependent on sufficient demand and available funding to justify the level of development proposed.

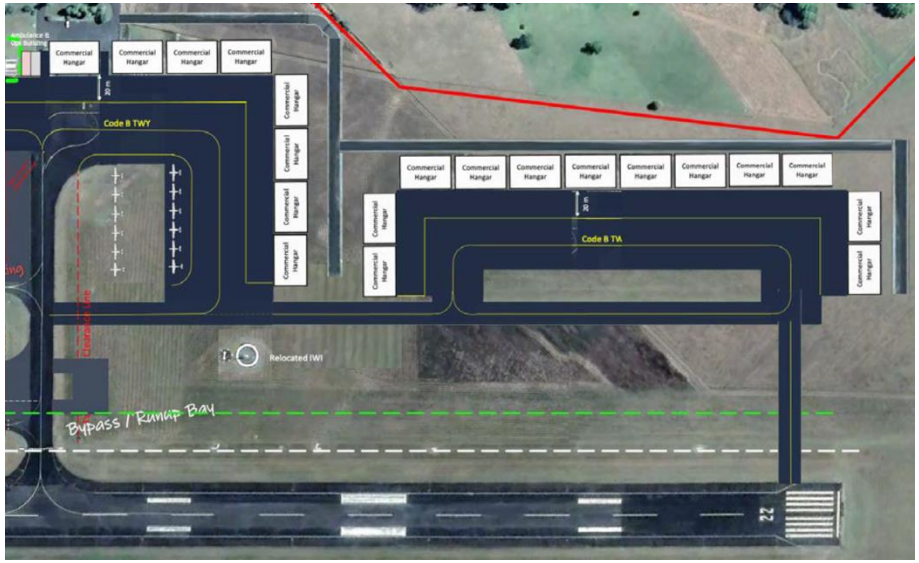


Figure 21. Concept for optimum aerospace precinct development (not to exact scale)

An alternative lower cost option, which may be considered if future demand and available funding do not justify the preferred design option, is to limit the aerospace precinct to smaller linear double-sided apron developments. This concept is shown in Figure 22.

Figure 22. Concept for alternative low-cost aerospace precinct development

7.9. General aviation facility development

Additional leased serviced hangar sites, leased low-cost hangars, and line parking areas were identified as the primary requirement to adequately cater to the typical small charter and training businesses, and recreational private pilots.

A limited number of hangar sites remain available in the existing business park development area, however, due to design constraints resulting from recent CASA MOS 139 changes, the original plan to provide additional leased hangar sites next to TWY D is no longer considered viable.

This is due to the typical stand-alone hangar building heights exceeding new runway strip transitional surface restrictions and the generally permanent nature of these facilities, which presents a risk of having to demolish established facilities and relocate tenants should CASA withdraw current grandfathered design provisions for the runway strip width in the future.

As an alternative, low profile, in-line unserviced hangar buildings may be an option for Council to build and lease in this location.

As a general policy, Kempsey Shire Council is committed to complying with the new MOS 139 requirements for any new airport development wherever possible, and only relying on grandfathered design provisions for low impact facilities which are easily relocated should CASA require compliance in the future.

Suitable locations for short and long-term development of general aviation hangar precincts exist in Zone 2, and these were included in the preferred development options.

Additional line parking options are available in the existing development area from repurposing the current fuel and RFS facility area and the adjacent existing apron once these facilities are relocated.

General areas considered for GA development are shown in Figure 23.

The final preferred options for GA development are shown in Figure 24.

Figure 23. General areas considered suitable for GA development

Figure 24. Preferred option for general aviation development

7.10. Emergency services facility development

For aeromedical services the preferred option is to maintain the current Code C main taxiway and turnaround and provide improved ambulance access and parking facilities in the main carpark area.

RFS has both an initial requirement for an improved location to service its current level of emergency activity, and a longer term potential requirement to establish a larger permanent RFS base facility with an emergency operations centre. Primary initial requirements for RFS are:

- Landside road access to tanks
- A landside/airside boundary location
- Initially space for a small double bay shed for housing equipment and a vehicle
- Aircraft parking and turnaround areas away from the main aviation activity
- Easy runway access.

Long-term potential requirements are:

- Space for dedicated RFS aviation emergency operations building facilities (typical requirement is 2.5 ha)
- Dedicated apron turnaround location and runway access away from other aviation activity
- Overflow aircraft parking for large numbers of emergency aircraft.

Potential development areas for the RFS facilities, both temporary and permanent were considered and discussed with Council in Zones 1, 2 and 3.

Two preferred options were identified for an initial relocation of RFS tanks and temporary facilities.

The first in Zone 3 adjacent to the business park road, which was considered the optimum temporary location and the site also meets all the requirements to suit long term development into a permanent RFS facility.

The area adjacent to the TWY D was also considered as a suitable temporary RFS location but was preferred for use as a relocated fuel facility and an option for leased line hangar construction.

An alternative permanent location would be in Zone 2 was also considered but preferred for aerospace precinct development

RFS temporary and permanent site options considered are shown in Figure 25.

The final preferred option for RFS development is shown in Figure 26.

Figure 25. RFS temporary and permanent site options

Figure 26. Preferred option for RFS development

7.11. Fuel facility

The current fuel facility is located entirely in an airside position requiring heavy truck access across apron and taxiway pavements for fuel delivery, has limited aircraft parking and does not adequately separate Avgas and Jet A1 refuelling.

Options to retain the facility in its current position were considered, including altering the taxiway layout to provide landside truck access to the island as well as altering the apron configuration to improve aircraft access, but these options remain compromised and better fuel access can be achieved if the fuel facility is relocated.

The two most viable options for relocation were either adjacent to the existing terminal building, or adjacent to TWY D.

Both locations provide landside access to the fuel facility for large vehicle fuel delivery and the opportunity to improve the refuelling layout to better separate Avgas and Jet A1 delivery.

Relocating the fuel facility next to the existing terminal building compromised the preferred layout for a long term aerospace taxiway and apron zone expansion into Zone 2.

A relocated fuel facility in the area adjacent to TWY D makes use of an area that is otherwise constrained by the changes to MOS 139, is central to all aircraft operations, moves the refuelling operation away from hangar precincts and improves access to fuel for aircraft which may operate from the southern side of the runway with Zone 4 development. This was the preferred option.

The two alternative locations considered, and the preferred option identified for fuel facility relocation are shown in Figure 27.

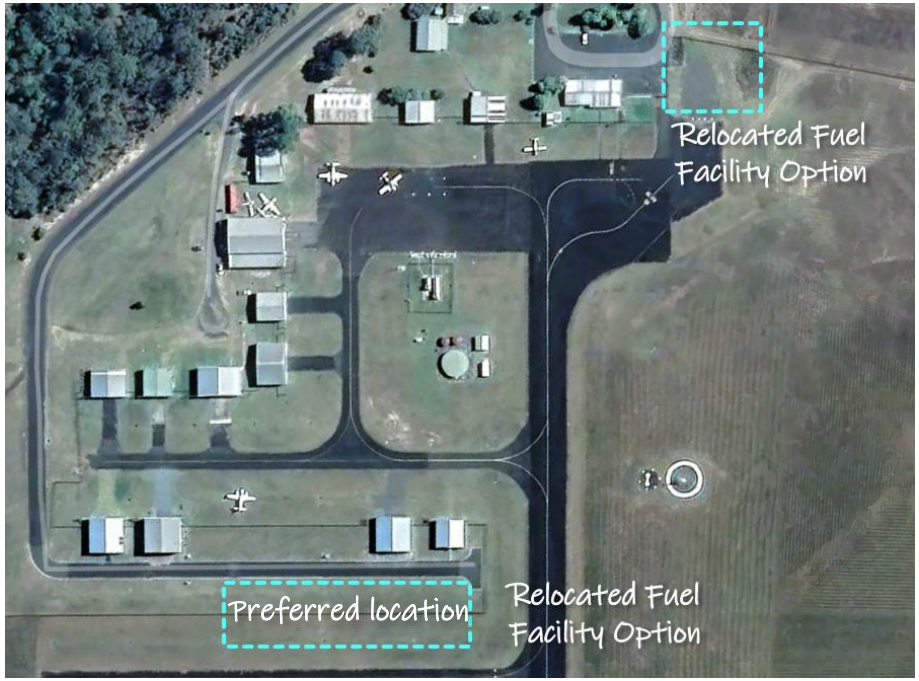


Figure 27. Relocated fuel facility options and preferred location

7.12. Zone 4 development

The Macleay Valley Adventure Recreation Park (MV-ARP) project is the primary development planned for the Zone 4 area south of the runway and within the current airside boundary. See Figure 28.

No additional development is currently contemplated for this Zone.

In the long-term, the MV-ARP facility has potential to be utilised in a dual-purpose role, by becoming the primary public access point for the aerodrome, in which case consideration should be given to expanding aircraft parking facilities and runway access.

Figure 28. Macleay Valley Adventure Recreation Park in Zone 4

7.13. Zone 5 development

Zone 5 is a large tract of land located south of the Old Aerodrome Road, outside of the current airport airside boundary fence.

This location is preferred for catering to non-aviation activities and events with minimal infrastructure requirements. Potential activities that can utilise this area include:

- Motorkhana activities of the Macleay Valley motoring organisation
- Car shows
- Other public events such as shows, concerts etc.

This area is shown in Figure 29.

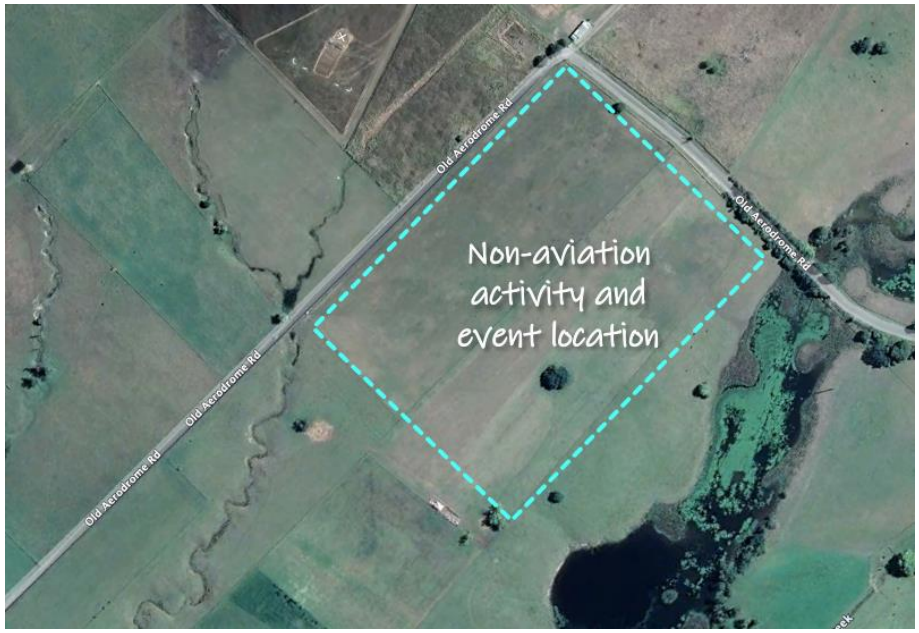


Figure 29. non-aviation activity and event area in Zone 5

8. 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 Airport 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.

8.1. 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.

A copy of the Noise Modelling Report prepared by SOUNDIN for the purposes of informing noise impacts associated with the development proposed herein is provided as an Annexure, to be complemented by a formal ANEF following technical endorsement by Airservices Australia after formal adoption of the Master Plan by Kempsey Shire Council.

8.2. 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.

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*.

8.3. 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.

8.4. 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.

8.5. 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.

Detailed information about the PANS-OPS surfaces is provided by Airservices Australia in documentation held by the Airport Manager.

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

8.6. 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).

8.7. 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 30) that replaces the risk-based model profile has been defined using the latest data on accidents shown to be located outside the aerodrome boundary.

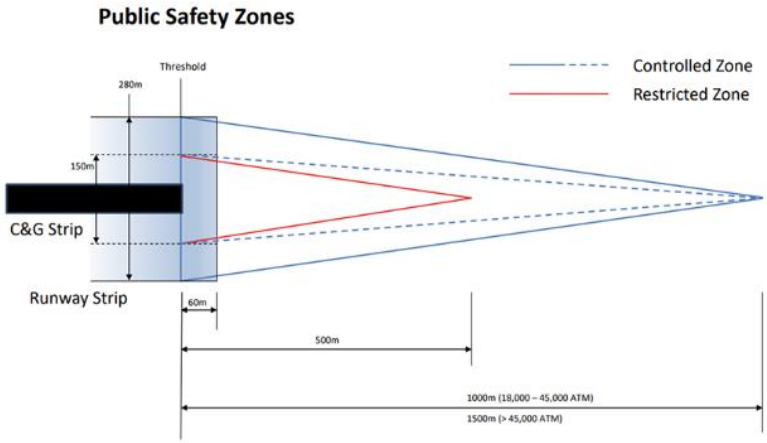


Figure 30. UK Public Safety Zone model

Since Kempsey Airport 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 04/22 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 Kempsey Airport.

Since Kempsey Airport 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 04/22 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 Kempsey Airport (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 Kempsey Airport 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 Kempsey Airport 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*.

9. VISION

9.1. Vision

The vision that has been developed as a result of the master planning study is as follows:

- Kempsey Airport must be protected and promoted as a significant community and commercial asset and safeguarded for long term aviation operations
- A commitment must be maintained to Kempsey Airport becoming a financially sustainable stand-alone business operation, through the implementation of revenue maximising commercial opportunities as appropriate
- Operational management of the airport must ensure safe aircraft operations, protection of airspace and compliance with relevant regulations
- To provide updated facilities to properly support emergency service aircraft operations including RFDS and CareFlight aeromedical services and NSW Fire Service emergency response
- To promote Kempsey Airport as a competitive destination for aerospace industry businesses and provide suitable airport infrastructure for commercial hangar precinct development
- To support and encourage the growth of traditional general aviation commercial charter and training organisations and private recreational aviation activity and provide suitable infrastructure for a second general aviation precinct development
- To support the development of the proposed adventure recreation park facility
- To ensuring future development remains compatible with Kempsey Airport Noise Management Plan and Fly Neighbourly Advice.

10. MASTER PLAN

The master plan has four development stages. The time frames, which are aspirational only and subject to funding availability, market demand and detailed design process, are:

1. Initial Development – the development elements that can realistically be implemented in the short term
2. Interim Development – the development that would follow initial development provided the initial development results in viable demand for additional facilities
3. Advanced Development – demand driven development
4. Ultimate Development – the possible extent of development given the design constraints and available development locations.

These stages and suggested time frames show a logical progression in development that could take place for planning purposes. Actual development and time frame is dependent on demand and the policies Council adopts to promote airport growth.

Overall master plan stage drawings are provided in Annexure 1. In this section individual elements are described for each development stage.

Development is shown for the northern side of the runway only. Development for the southern side of the runway was previously described in Section 7.12 and 7.15.

As noted in Section 7.8, the preferred design for aerospace precinct development is shown in the staged master plan drawings. An alternative lower cost option for the aerospace precinct may be considered if future demand and available funding do not justify the preferred design option.

10.1. INITIAL DEVELOPMENT STAGE

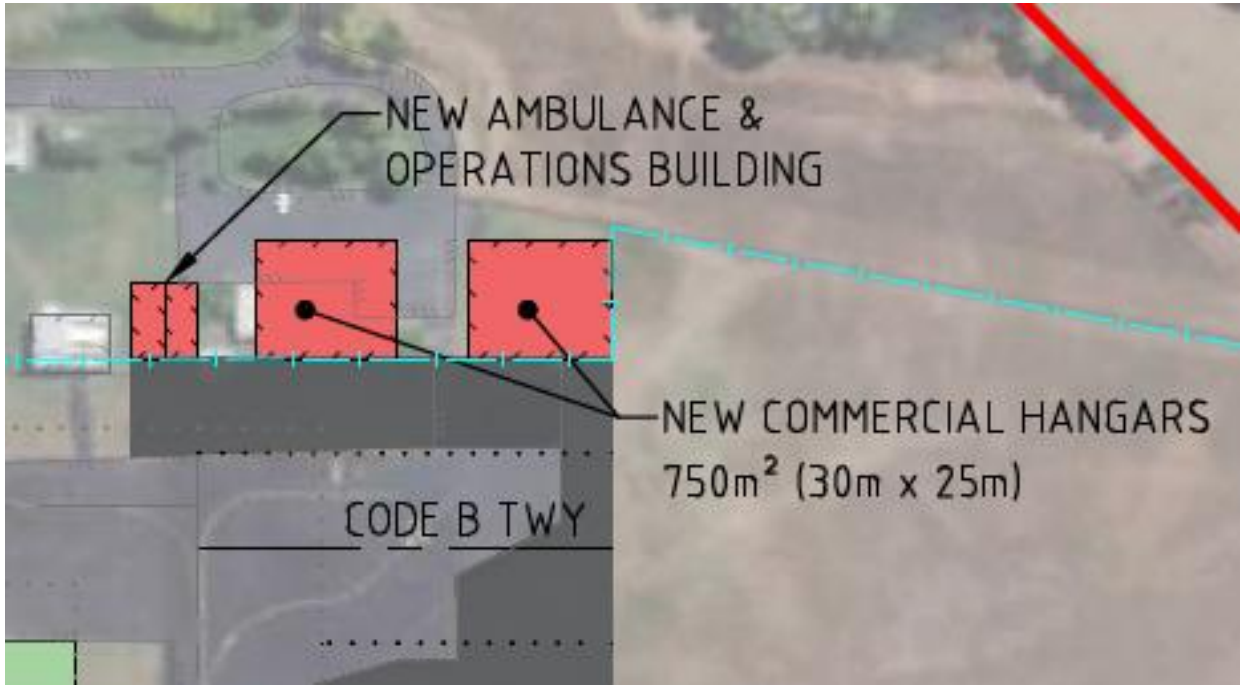


Figure 31. Initial development of Zone 2

- Main terminal building converted to commercial hangar site
- Apron expansion to provide Code B taxiway and additional commercial hangar site with 20 m parking
- New operations building with ambulance parking bays

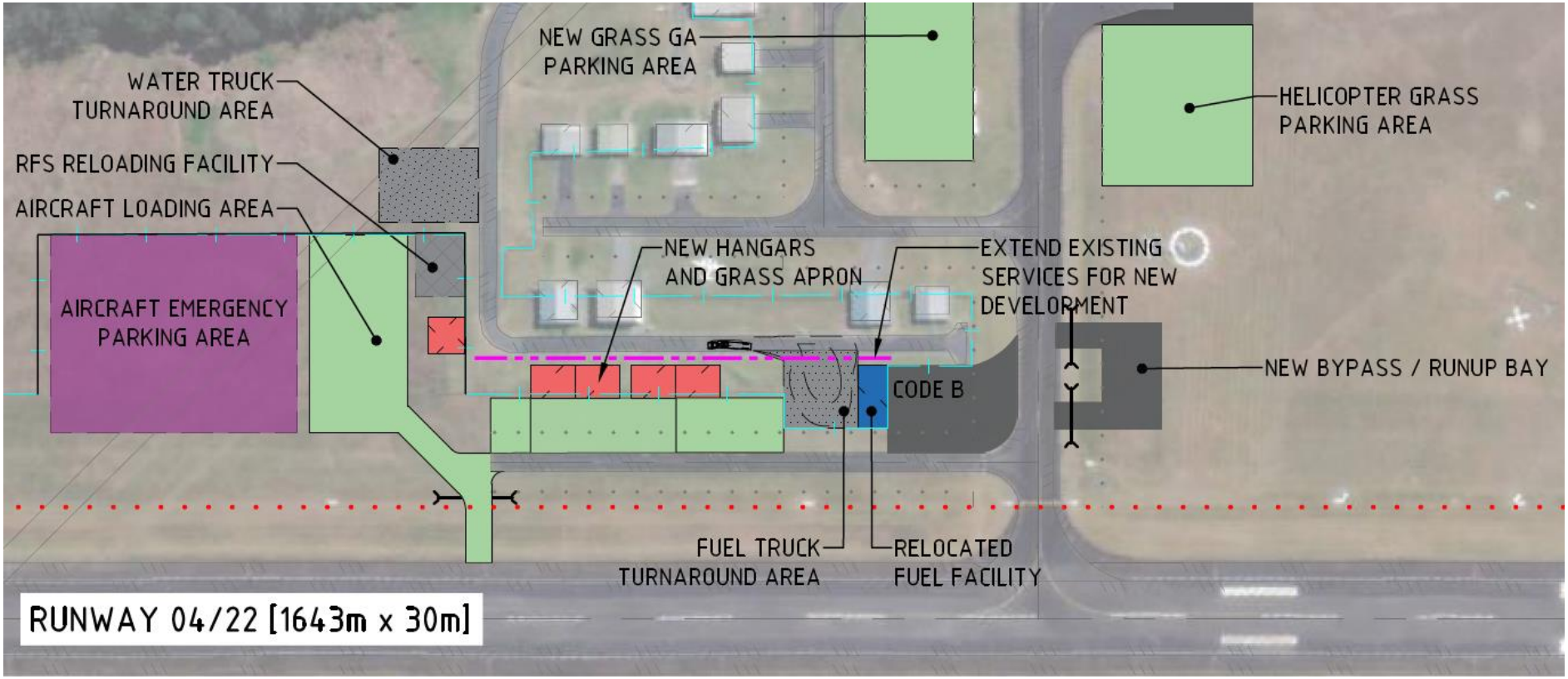


Figure 32. Initial development of Zone 1 and Zone 3

- Fire Service facilities relocated to Zone 3 location with direct unsealed runway access
- Relocation of fuel facility to adjacent to TWY D
- Low-profile line rental hangars adjacent to TWY D
- Additional unsealed line parking in the area where RFS and fuel facility were located
- Designated unsealed helicopter parking area
- New bypass/ runup bay

10.3. INTERIM / ADVANCED DEVELOPMENT STAGE CONCEPTS

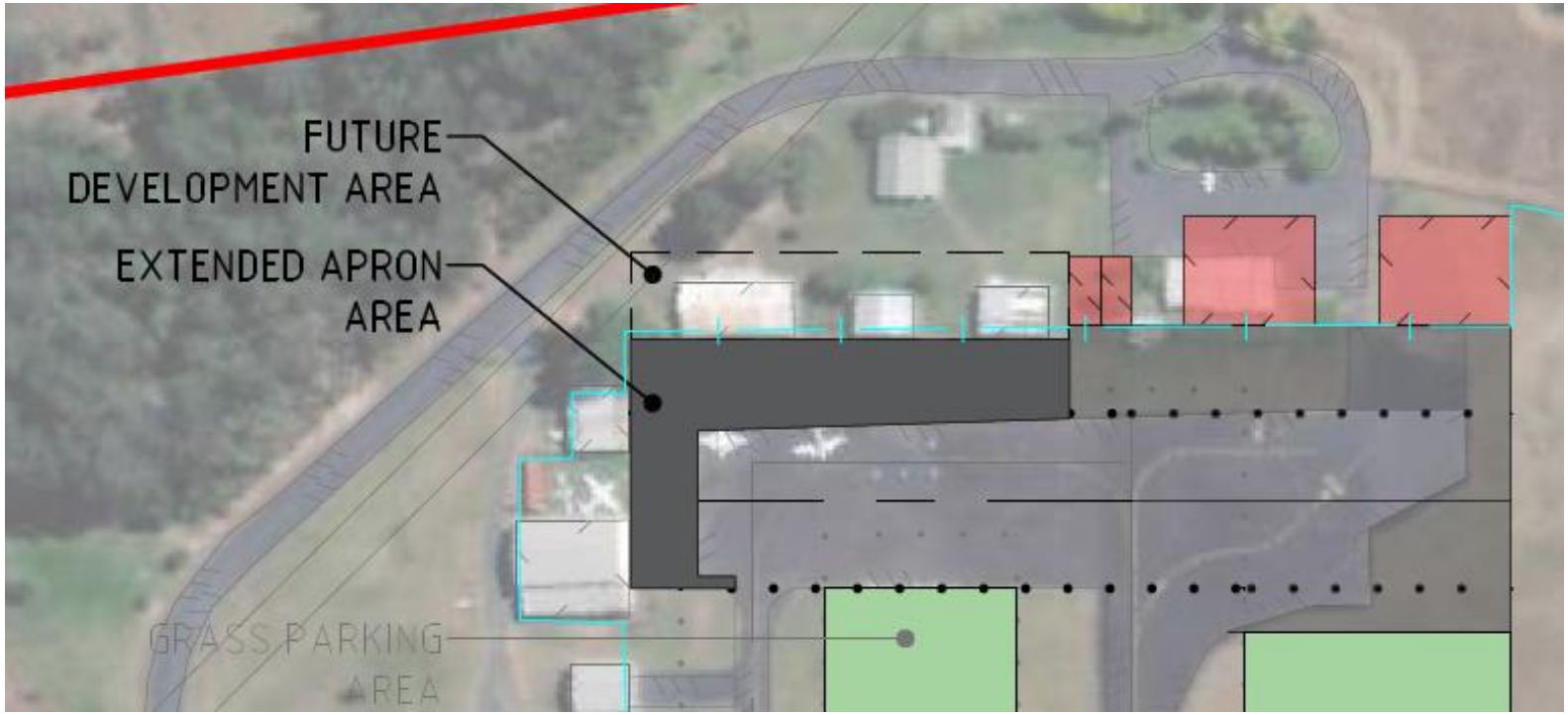


Figure 33. Interim / advanced development of Zone 1

- TWY B Apron redeveloped to provide Code B taxiway and 20 m parking
- Old hangars 1 to 5 redeveloped for commercial hangar sites – subject to existing leases and any future development in this area will be managed in accordance with these lease conditions and in consultation with the leaseholders.

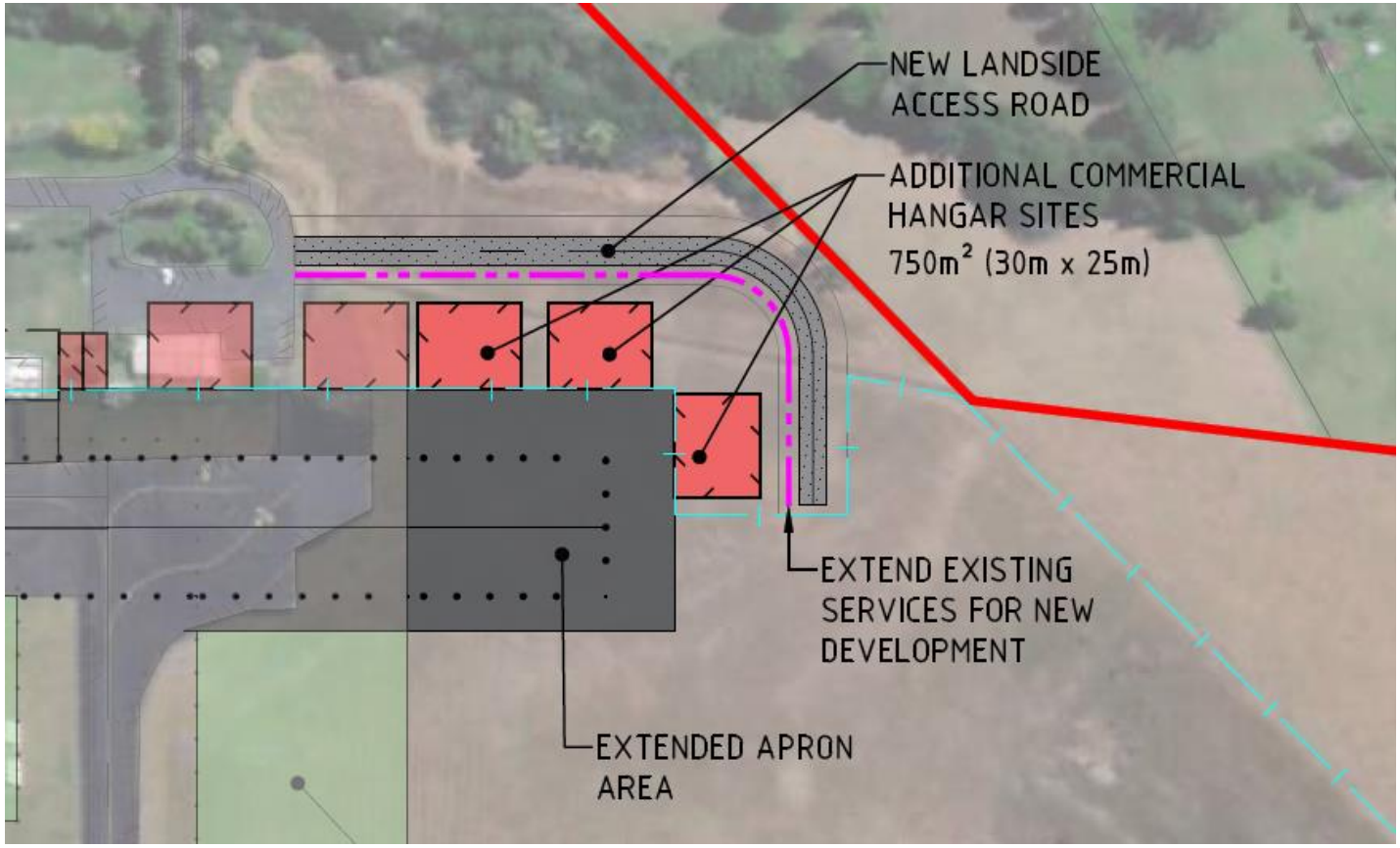


Figure 34. Interim / advanced development of Zone 2

- Aerospace Apron extended in line with commercial hangar demand

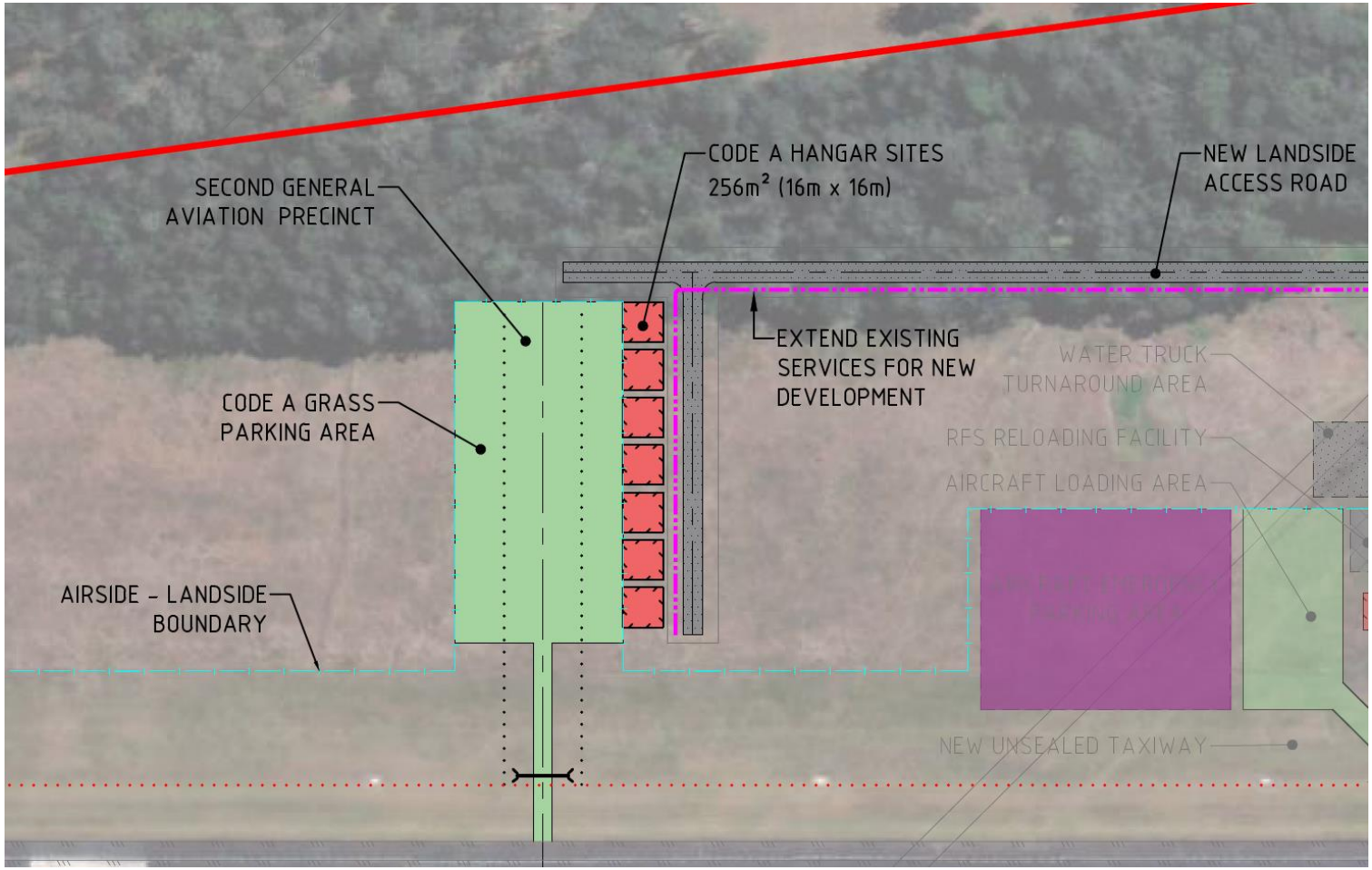


Figure 35. Interim / advanced development of Zone 3

- Road and services access for second GA hangar precinct, initially with unsealed runway access.

10.4. ULTIMATE DEVELOPMENT STAGE CONCEPT

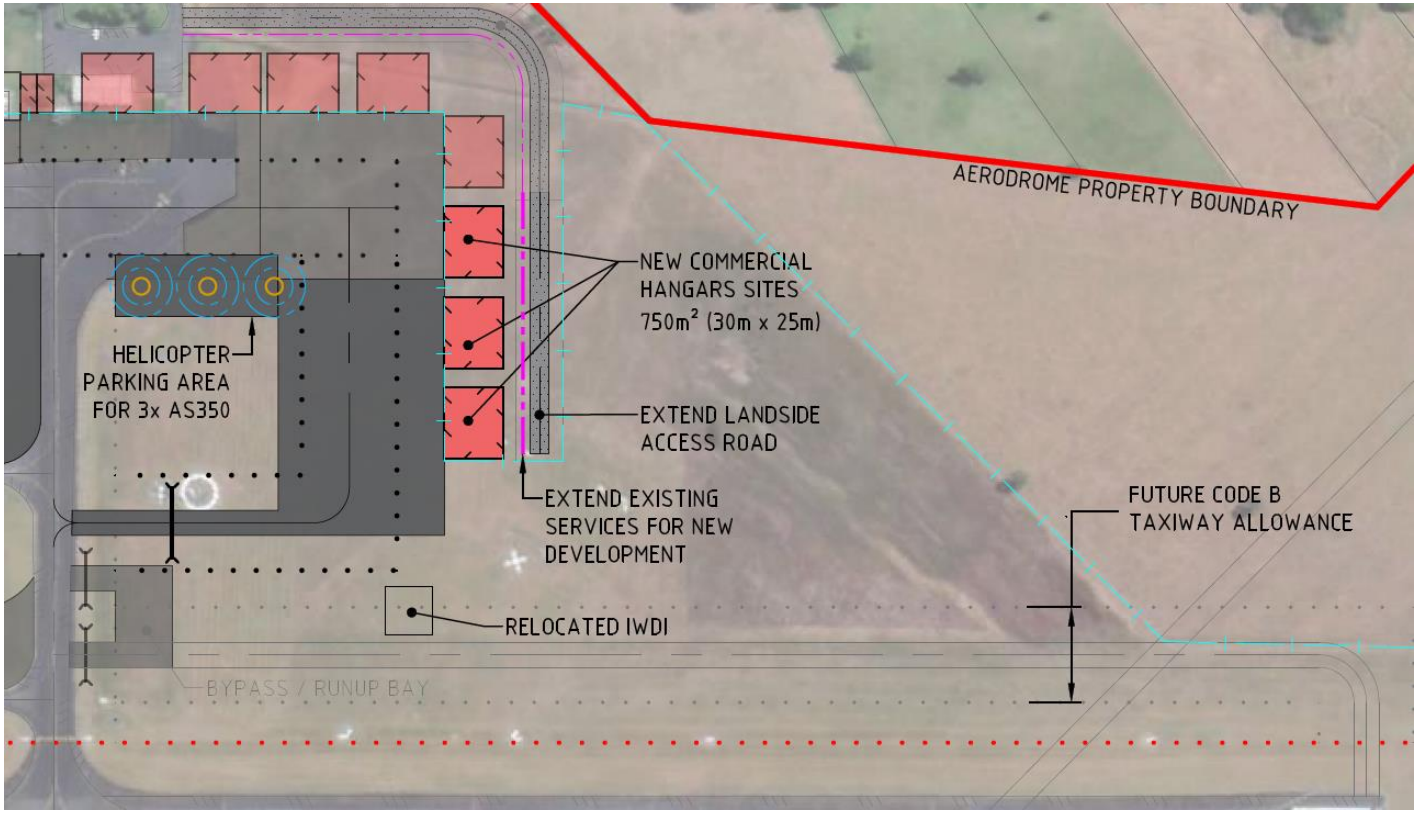


Figure 36. Ultimate development of Zone 2

- Full development of aerospace apron and commercial hangar sites
- Sealed helicopter parking
- Preservation of future parallel Code B taxiway to RWY 22 threshold

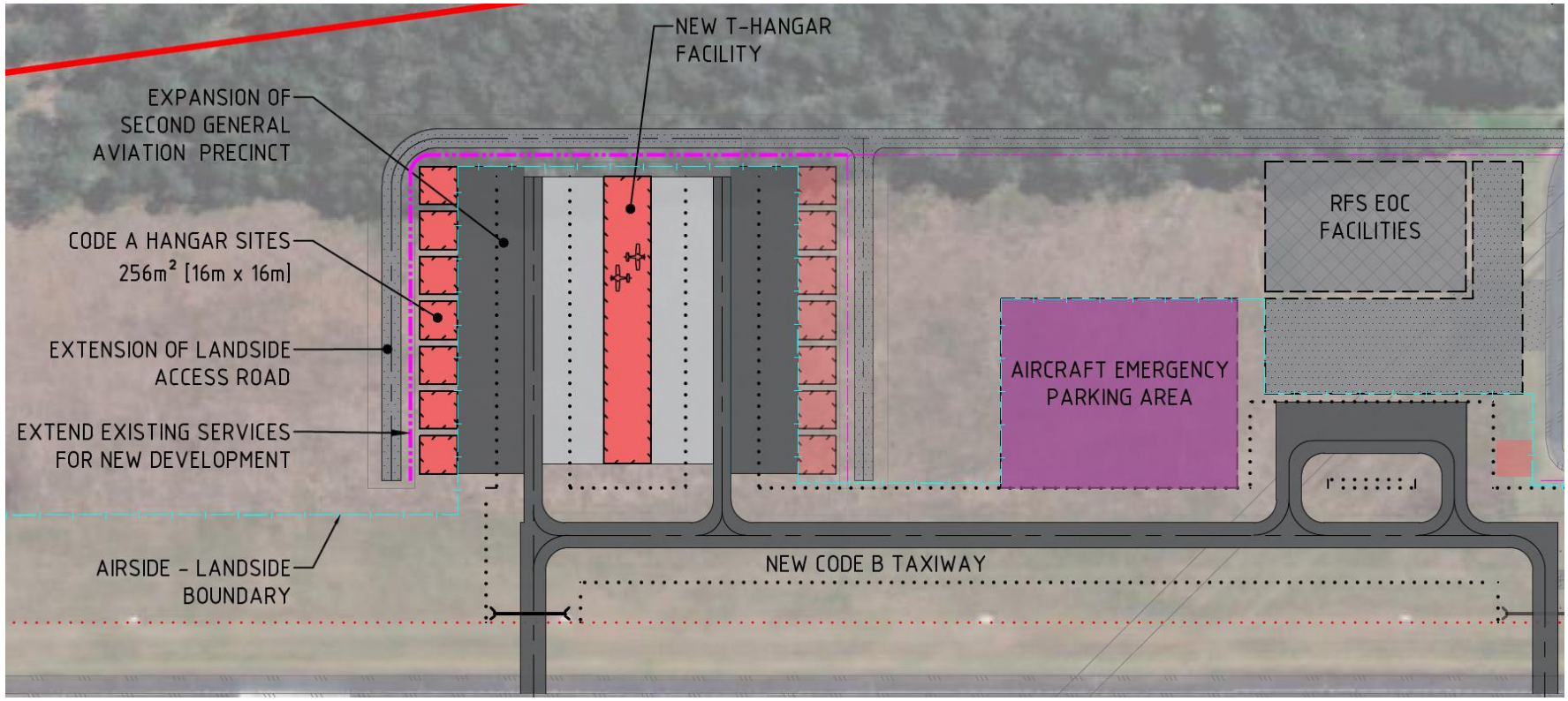
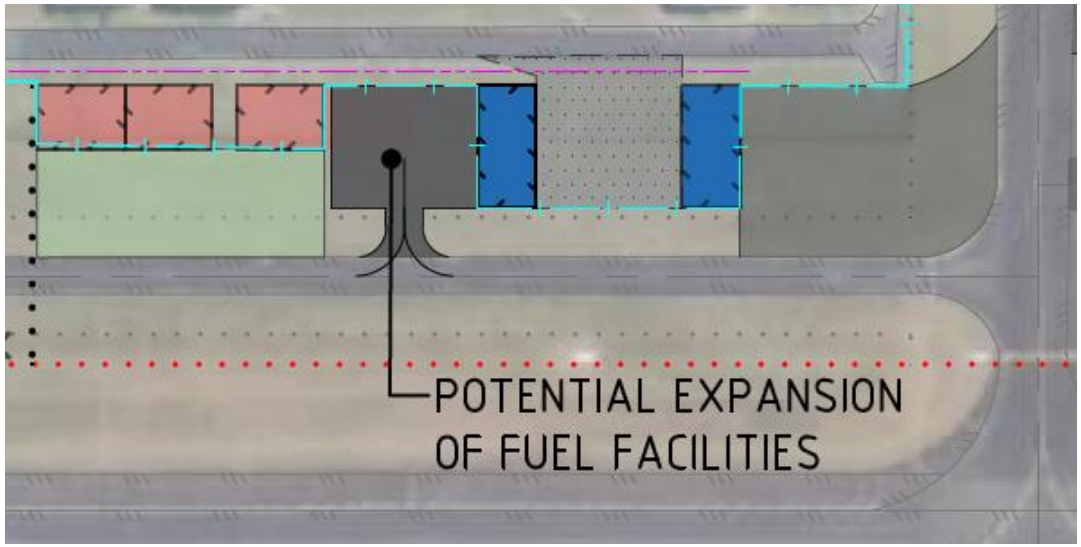


Figure 37. Ultimate development of Zone 3

- Extension of new parallel taxiway and full development of second GA hangar precinct
- Redevelopment of temporary RFS facility to permanent facility in Zone 3



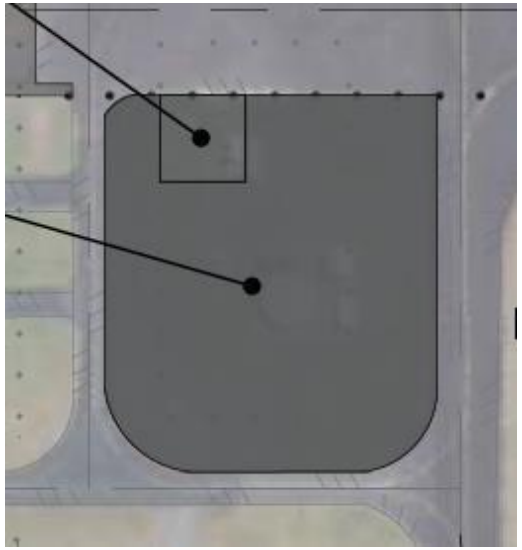


Figure 38. Ultimate development of Zone 1

- Expanded fuel facility to separate Avgas and Jet A1
- Sealed line parking in centre island
- Aircraft wash bay

11. GLOSSARY

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

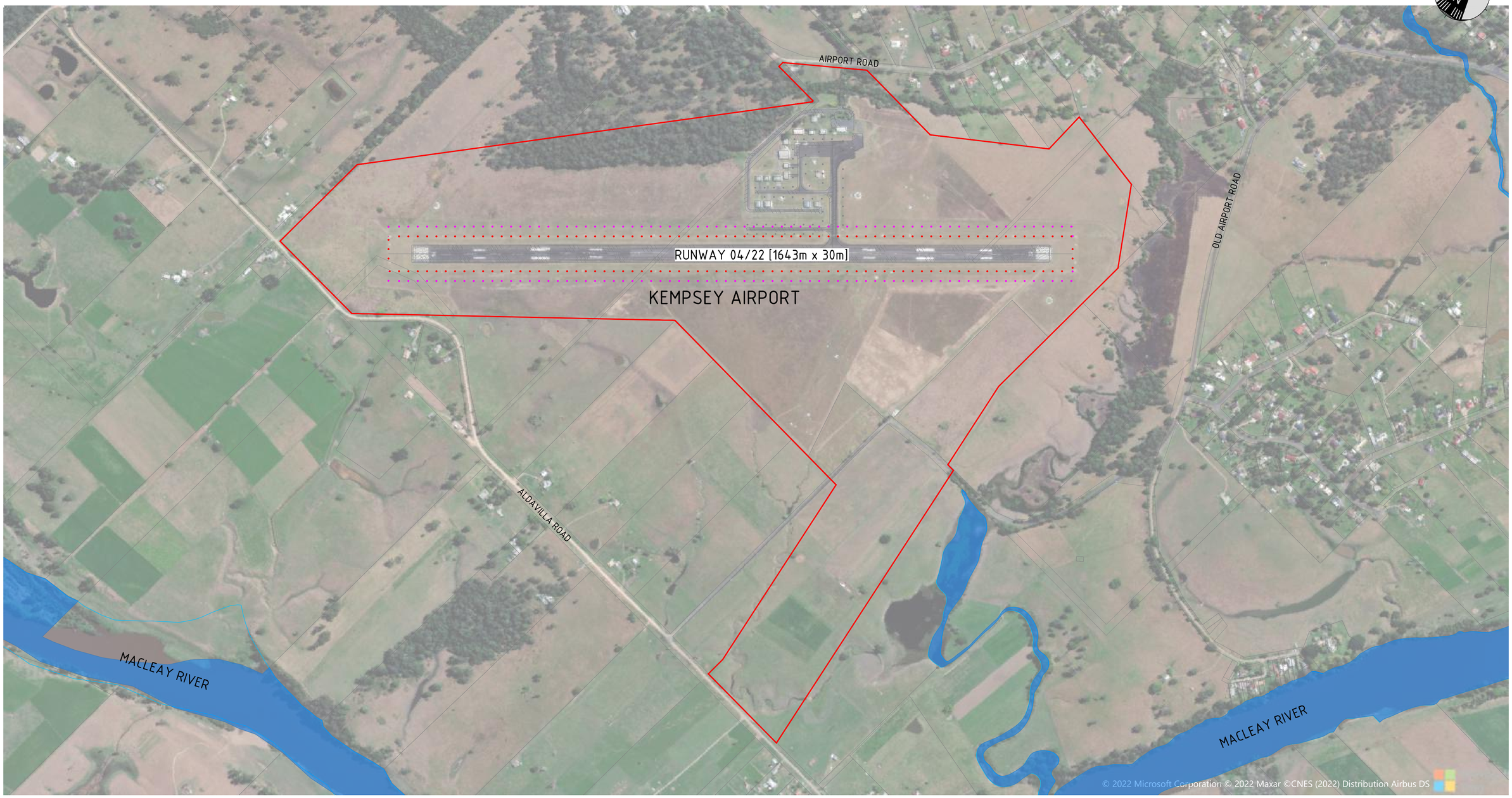
12. REFERENCES

- Airservices Australia, Aeronautical Information Package; including En Route Supplement Australia (ERSA, RDS, DAP) effective 01 December 2022
- 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*

ANNEXURES

Annexures contain the following Kempsey Airport Master Plan Drawings:

1. **Existing Arrangement [E2209-01-YKMP-SKT-0001]**
2. **Airport Development Zones [E22099-01-YKMP-SKT-0002]**
3. **Initial Phase [E22099-01-YKMP-SKT-0003]**
4. **Interim Phase [E22099-01-YKMP-SKT-0004]**
5. **Advanced Phase [E22099-01-YKMP-SKT-0005]**
6. **Ultimate Phase [E22099-01-YKMP-SKT-0006]**
7. **Zone 4 MV-ARP Development Plan [AR-1001]**
8. **Obstacle Limitation Surface (90m Strip) [E22099-01-YKMP-SKT-00007]**
9. **Obstacle Limitation Surface (140m Strip) [E22099-01-YKMP-SKT-0011]**
10. **Wildlife Protection Zones [E22099-01-YKMP-SKT-0008]**
11. **Wind Shear Trigger Assessment [E22099-01-YKMP-SKT-0009]**
12. **Lighting in the Vicinity of Aerodromes [E22099-01-YKMP-SKT-0010]**
13. **Kempsey Airport ANEC Year 2042**
14. **Kempsey Airport Number Above Year 2042 (N60, N65, N70)**



PLAN

SCALE 1:5000

SCALE 1:5000 (A1) 100 50 0 100 200 300 400 500m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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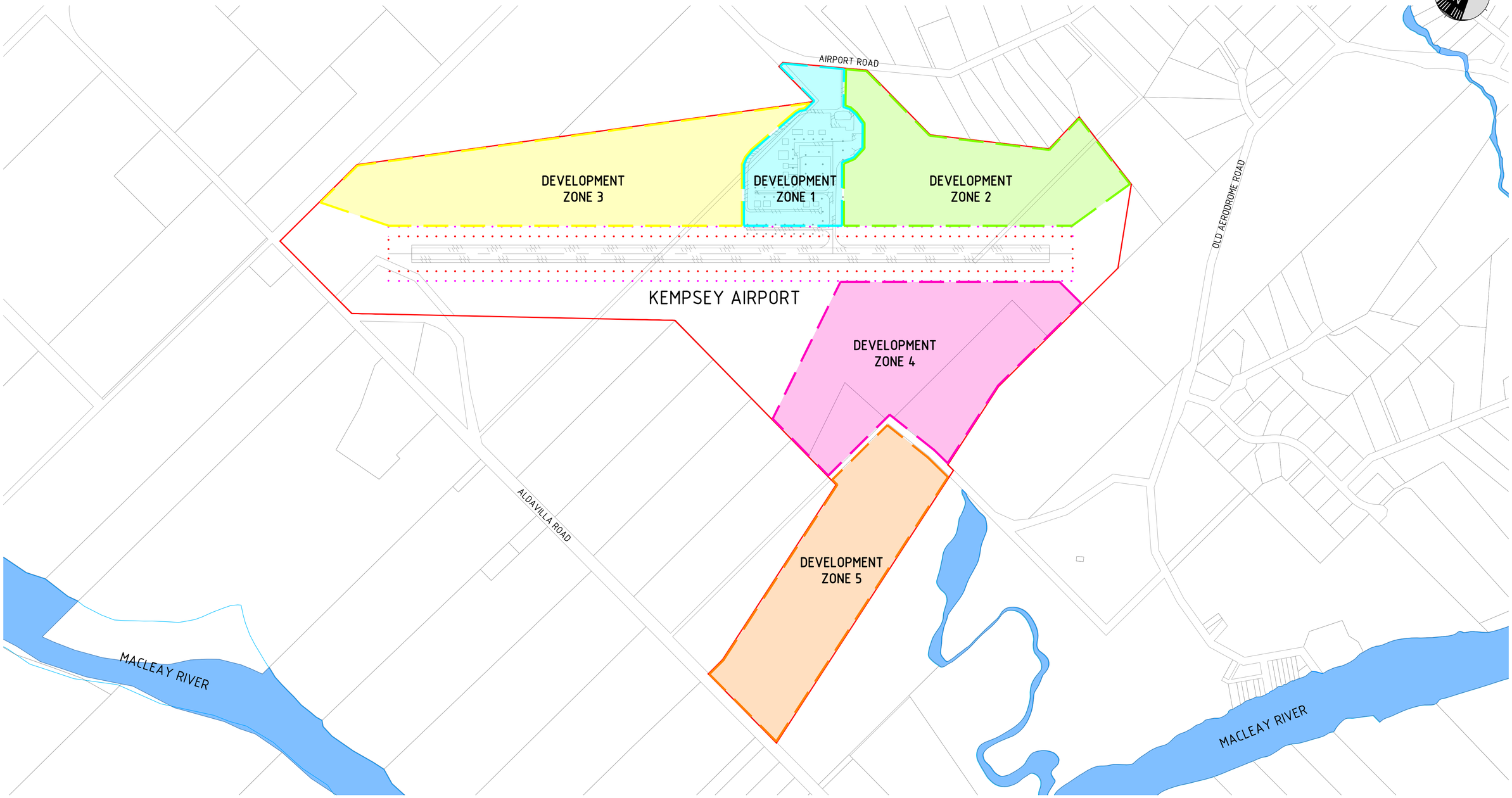
STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
EXISTING ARRANGEMENT

DRAWING SCALE	GRID	DATUM	ORIG. SIZE	DRAWING No.	REVISION
1:5000	MGA-56	AHD	A1	E22099-01-YKMP-SKT-0001	A

FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_YKMP\E22099-01-YKMP-SKT-0001 EXISTING.DWG
BY: AARON COGHILL
DATE: Wednesday, 13 April 2022 9:05:00 AM



PLAN

SCALE 1:5000

SCALE 1:5000 (A1) 100 50 0 100 200 300 400 500m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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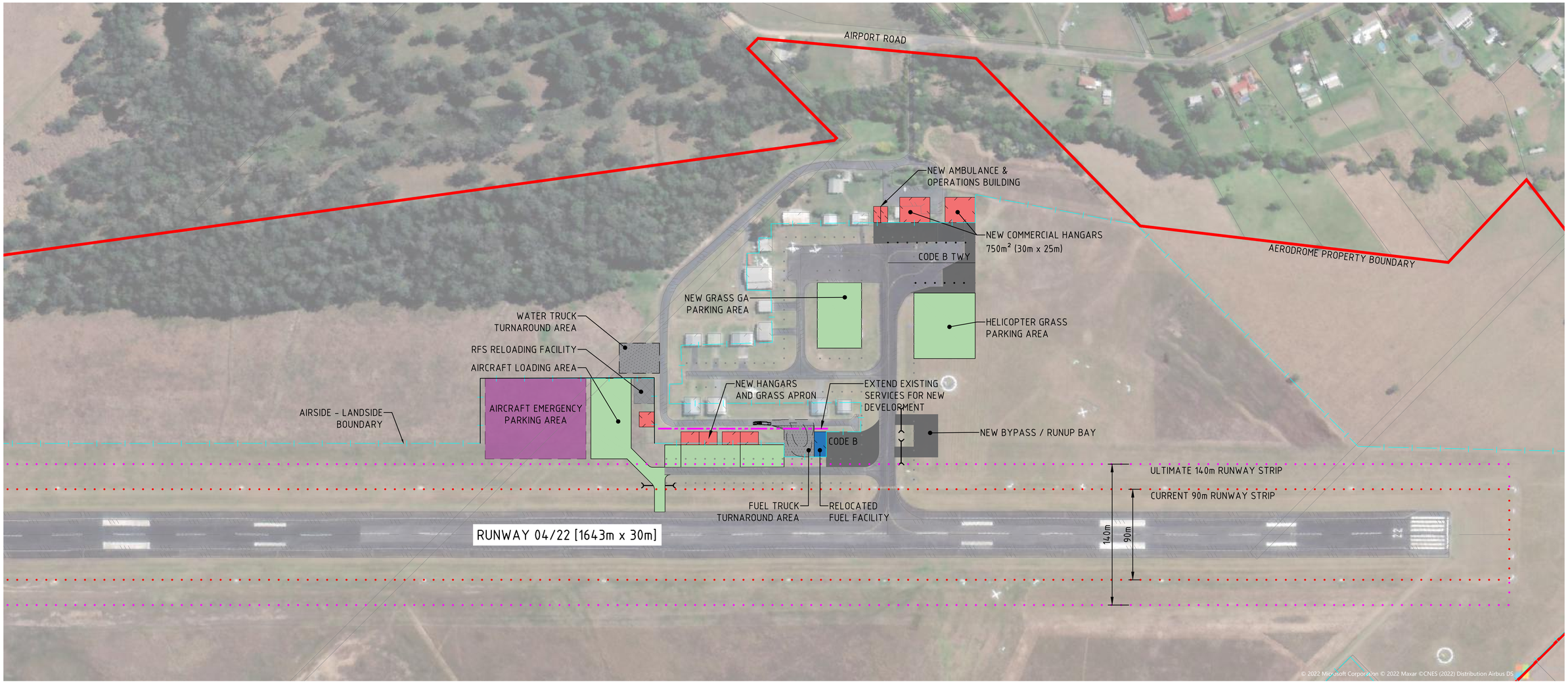
DRAWING SCALE	GRID	ORIG. SIZE
1:5000	MGA-56	A1
	DATUM AHD	

STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
AIRPORT DEVELOPMENT ZONES

DRAWING No. E22099-01-YKMP-SKT-0002

REVISION A



PLAN

SCALE 1:2000

LEGEND

- EXISTING PAVEMENT FROM PREVIOUS YEARS AVIATION / LANDSIDE
- PROPOSED PAVEMENT EXTENSION 10-15 YEARS PLAN AVIATION / VEHICLE
- PROPOSED UNSEALED PAVEMENTS
- NEW BUILDINGS
- AERODROME BOUNDARY
- PROPOSED SERVICES
- AIRSIDE / LANDSIDE BOUNDARY
- EXISTING 90m RUNWAY STRIP
- ULTIMATE 140m RUNWAY STRIP

THE DELIVERY OF THE AIRPORT MASTER PLAN IS DEPENDENT ON FUNDING AVAILABILITY, MARKET DEMAND AND THE UNDERTAKING OF DETAILED DESIGN PROCESSES. SOME ELEMENTS MAY BE DELAYED OR ACCELERATED AS A CONSEQUENCE

SCALE 1:2000 (A1) 0 40 80 120 160 200m / 40 20

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
C	ULTIMATE 140m RUNWAY STRIP ADDED, LEGEND UPDATED	09.12.2022	APC	PJO	PB
B	CHANGES TO ADDRESS CLIENTS COMMENTS	08.12.2022	APC	PJO	PB
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
INITIAL PHASE

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:2000	MGA-56 / DATUM AHD	A1	E22099-01-YKMP-SKT-0003	C

DATE: Wednesday, 13 April 2022 9:05:00 AM BY: AARON COGHILL FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_YKMP\E22099-01-YKMP-SKT-0003 0-5YRS.DWG

PLAN

SCALE 1:2000

LEGEND

- EXISTING PAVEMENT FROM PREVIOUS YEARS AVIATION / LANDSIDE
- PROPOSED PAVEMENT EXTENSION 10-15 YEARS PLAN AVIATION / VEHICLE
- PROPOSED UNSEALED PAVEMENTS
- NEW BUILDINGS
- AERODROME BOUNDARY
- PROPOSED SERVICES
- AIRSIDE / LANDSIDE BOUNDARY
- EXISTING 90m RUNWAY STRIP
- ULTIMATE 140m RUNWAY STRIP

THE DELIVERY OF THE AIRPORT MASTER PLAN IS DEPENDENT ON FUNDING AVAILABILITY, MARKET DEMAND AND THE UNDERTAKING OF DETAILED DESIGN PROCESSES. SOME ELEMENTS MAY BE DELAYED OR ACCELERATED AS A CONSEQUENCE

SCALE 1:2000 (A1) 40 20 0 40 80 120 160 200m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
C	ULTIMATE 140m RUNWAY STRIP ADDED, LEGEND UPDATED	09.12.2022	APC	PJO	PB
B	CHANGES TO ADDRESS CLIENTS COMMENTS	08.12.2022	APC	PJO	PB
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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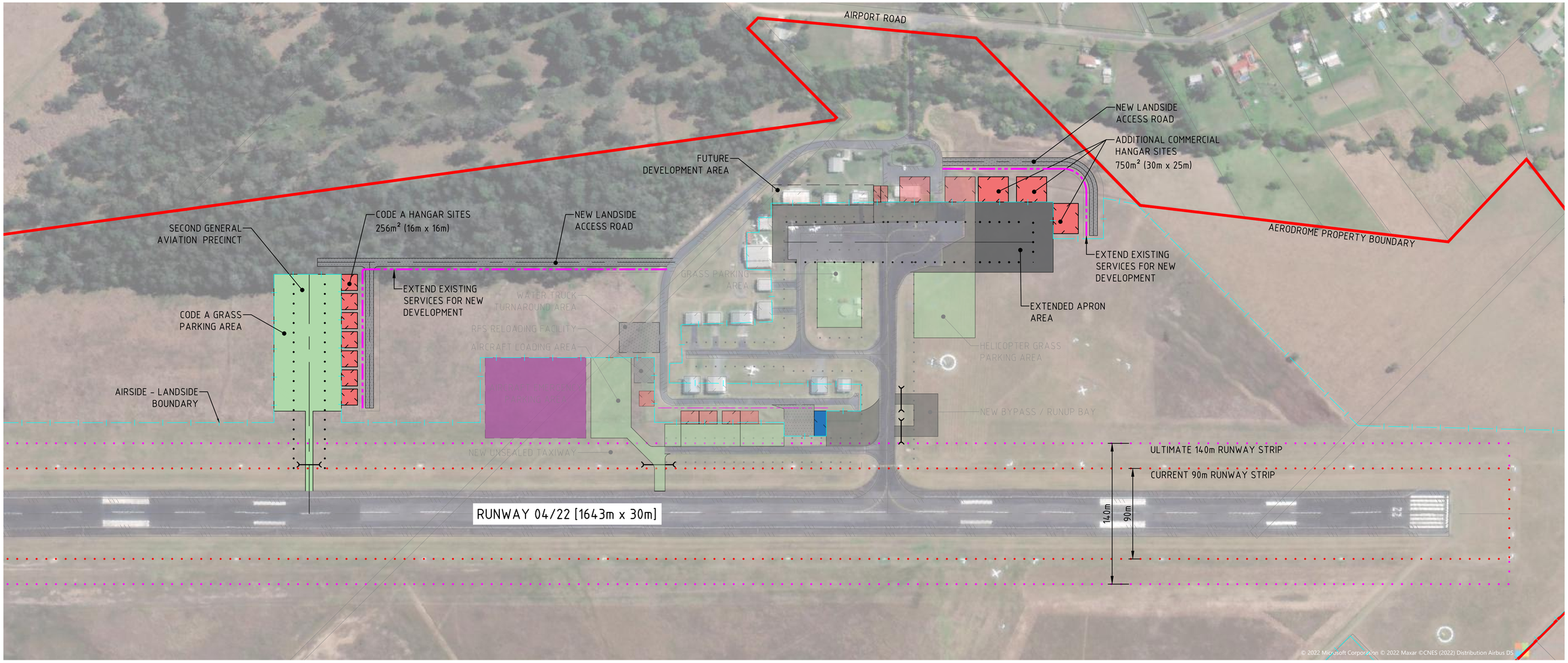
DRAWING SCALE 1:2000
GRID MGA-56
DATUM AHD
ORIG. SIZE A1

STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
INTRIM PHASE

DRAWING No. E22099-01-YKMP-SKT-0004

REVISION C



PLAN

SCALE 1:2000

LEGEND

- EXISTING PAVEMENT FROM PREVIOUS YEARS AVIATION / LANDSIDE
- PROPOSED PAVEMENT EXTENSION 10-15 YEARS PLAN AVIATION / VEHICLE
- PROPOSED UNSEALED PAVEMENTS
- NEW BUILDINGS
- AERODROME BOUNDARY
- PROPOSED SERVICES
- AIRSIDE / LANDSIDE BOUNDARY
- EXISTING 90m RUNWAY STRIP
- ULTIMATE 140m RUNWAY STRIP

THE DELIVERY OF THE AIRPORT MASTER PLAN IS DEPENDENT ON FUNDING AVAILABILITY, MARKET DEMAND AND THE UNDERTAKING OF DETAILED DESIGN PROCESSES. SOME ELEMENTS MAY BE DELAYED OR ACCELERATED AS A CONSEQUENCE

SCALE 1:2000 (A1) 40 20 0 40 80 120 160 200m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
C	ULTIMATE 140m RUNWAY STRIP ADDED, LEGEND UPDATED	09.12.2022	APC	PJO	PB
B	CHANGES TO ADDRESS CLIENTS COMMENTS	08.12.2022	APC	PJO	PB
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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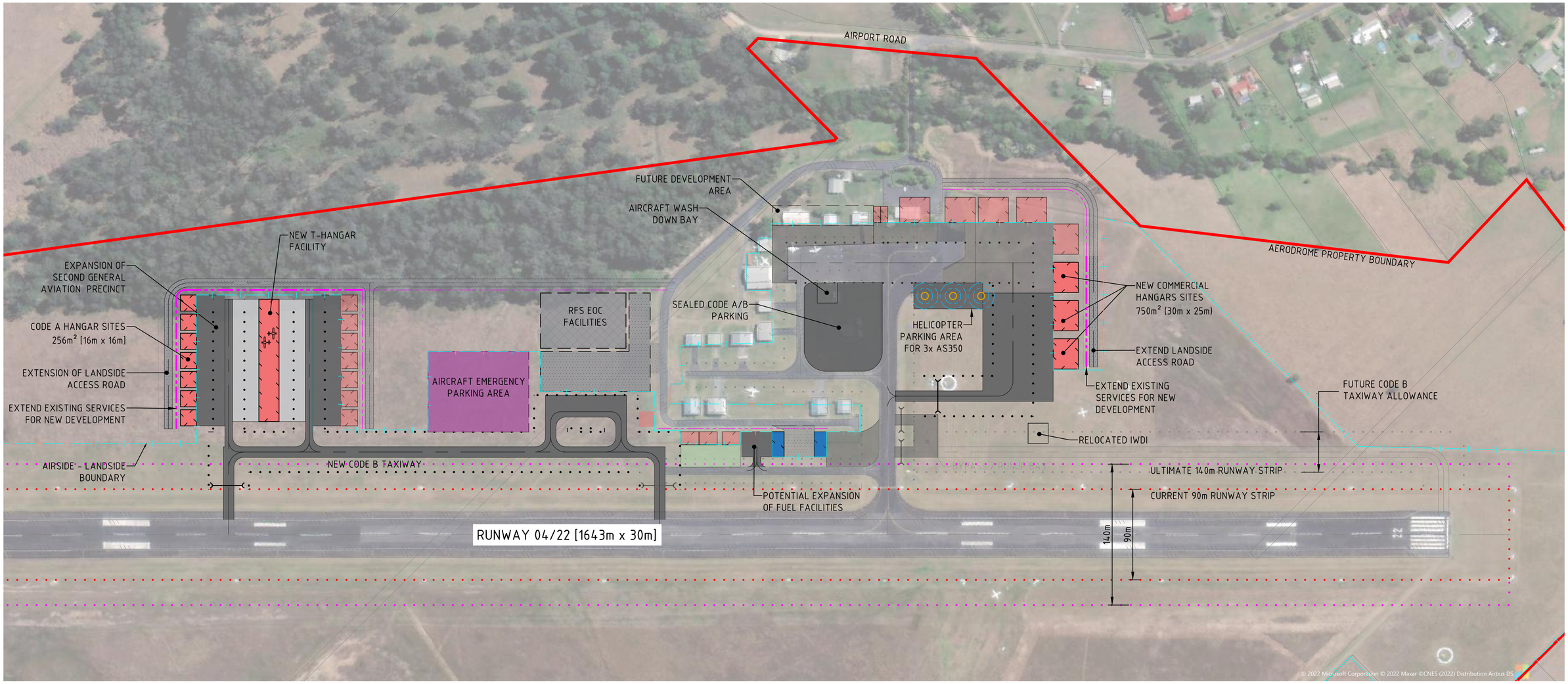
DRAWING SCALE 1:2000
GRID MGA-56
DATUM AHD
ORIG. SIZE A1

STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
ADVANCED PHASE

DRAWING No. E22099-01-YKMP-SKT-0005

REVISION C



PLAN

SCALE 1:2000

LEGEND

- EXISTING PAVEMENT FROM PREVIOUS YEARS AVIATION / LANDSIDE
- PROPOSED PAVEMENT EXTENSION 10-15 YEARS PLAN AVIATION / VEHICLE
- PROPOSED UNSEALED PAVEMENTS
- NEW BUILDINGS
- AERODROME BOUNDARY
- PROPOSED SERVICES
- AIRSIDE / LANDSIDE BOUNDARY
- EXISTING 90m RUNWAY STRIP
- ULTIMATE 140m RUNWAY STRIP

THE DELIVERY OF THE AIRPORT MASTER PLAN IS DEPENDENT ON FUNDING AVAILABILITY, MARKET DEMAND AND THE UNDERTAKING OF DETAILED DESIGN PROCESSES. SOME ELEMENTS MAY BE DELAYED OR ACCELERATED AS A CONSEQUENCE

SCALE 1:2000 (A1) 40 20 0 40 80 120 160 200m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
C	ULTIMATE 140m RUNWAY STRIP ADDED, LEGEND UPDATED	09.12.2022	APC	PJO	PB
B	CHANGES TO ADDRESS CLIENTS COMMENTS	08.12.2022	APC	PJO	PB
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	08.11.2022
DRAFTING CHECK	PJO	08.11.2022
DESIGNED	APC	08.11.2022
DESIGN CHECK	PJO	08.11.2022
VERIFIED	PJO	08.11.2022
APPROVED		

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STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
ULTIMATE PHASE

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:2000	MGA-56	A1	E22099-01-YKMP-SKT-0006	C

DATUM AHD

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- Verify all dimensions on site prior to commencement of work.
- DO NOT scale off these drawings.
- Report any discrepancies to the architect before carrying out any work.

AMENDMENTS

REV	DESCRIPTION	AUTH	CHK	DATE
1	For Coordination	AO	KM	16.02.22
2	For Coordination	AO	KM	18.02.22
3	Development Application	AO	KM	24.02.22

STATUS
DEVELOPMENT APPLICATION

NORTH

SYDNEY
Level 5, 111-117 Devonshire St
Surry Hills NSW 2010
T +61 2 8396 9500
syd@modedesign.com.au

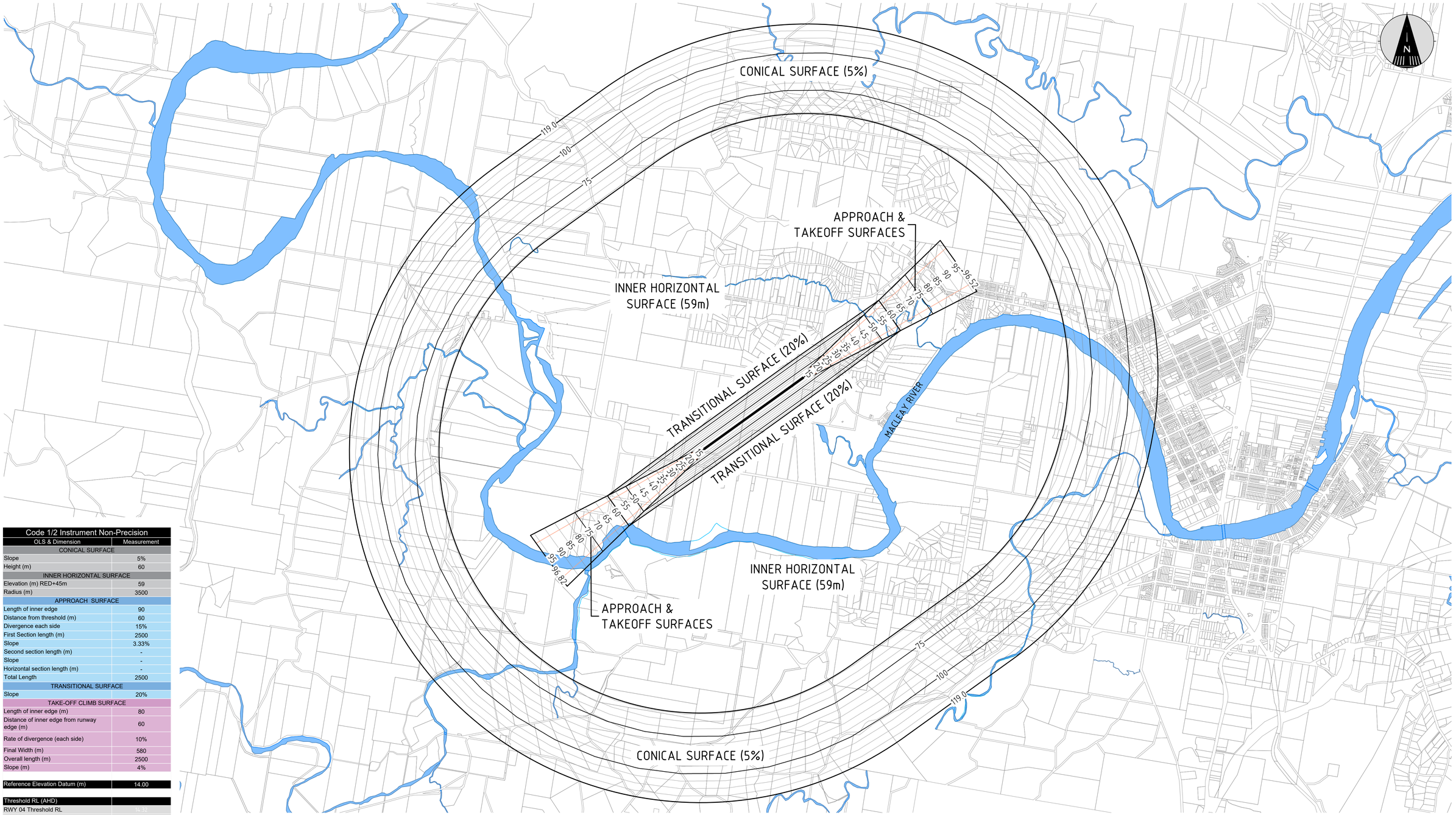
ABN: 65 112 807 931

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
Macleay Valley Adventure Recreation Park
20 AIRPORT ROAD ALDAVILLA 2440
(ACCESS VIA OLD AERODROME RD)

DRAWING TITLE
AIRPORT PRECINCT PLAN

DRAWN	CHECKED		
AO	KM		
ISSUE 24/02/2022 10:41:52 AM	SCALE @ A1 1 : 2500	SCALE @ A3 1 : 5000	
PROJECT No 21499	STAGE DA	DRAWING No AR- 1001	REVISION 3



Code 1/2 Instrument Non-Precision	
OLS & Dimension	Measurement
CONICAL SURFACE	
Slope	5%
Height (m)	60
INNER HORIZONTAL SURFACE	
Elevation (m) RED+45m	59
Radius (m)	3500
APPROACH SURFACE	
Length of inner edge	90
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)	14.00

Threshold RL (AHD)	
RWY 04 Threshold RL	14.97
RWY 22 Threshold RL	14.02

NOTES:

1. ALL DIMENSIONS AND DISTANCES ARE IN METRES, UNLESS OTHERWISE STATED.

2. ELEVATION DATUM - AHD.

3. OLS SURFACES IN ACCORDANCE WITH MOS PART 139 / ICAO Annex 14.

PLAN

SCALE 1:25,000

SCALE 1:25,000 (A1) 500 250 0 500 1000 1500 2000 2500m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	08.11.2022	APC	PJO	PB

KEMPSEY Shire Council

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KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	28.11.2022
DRAFTING CHECK	PJO	28.11.2022
DESIGNED	APC	28.11.2022
DESIGN CHECK	PJO	28.11.2022
VERIFIED	PJO	28.11.2022
APPROVED		

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AIRPORT CONSULTANCY GROUP
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DRAWING SCALE 1:25,000
GRID MGA-56
DATUM AHD
ORIG. SIZE A1

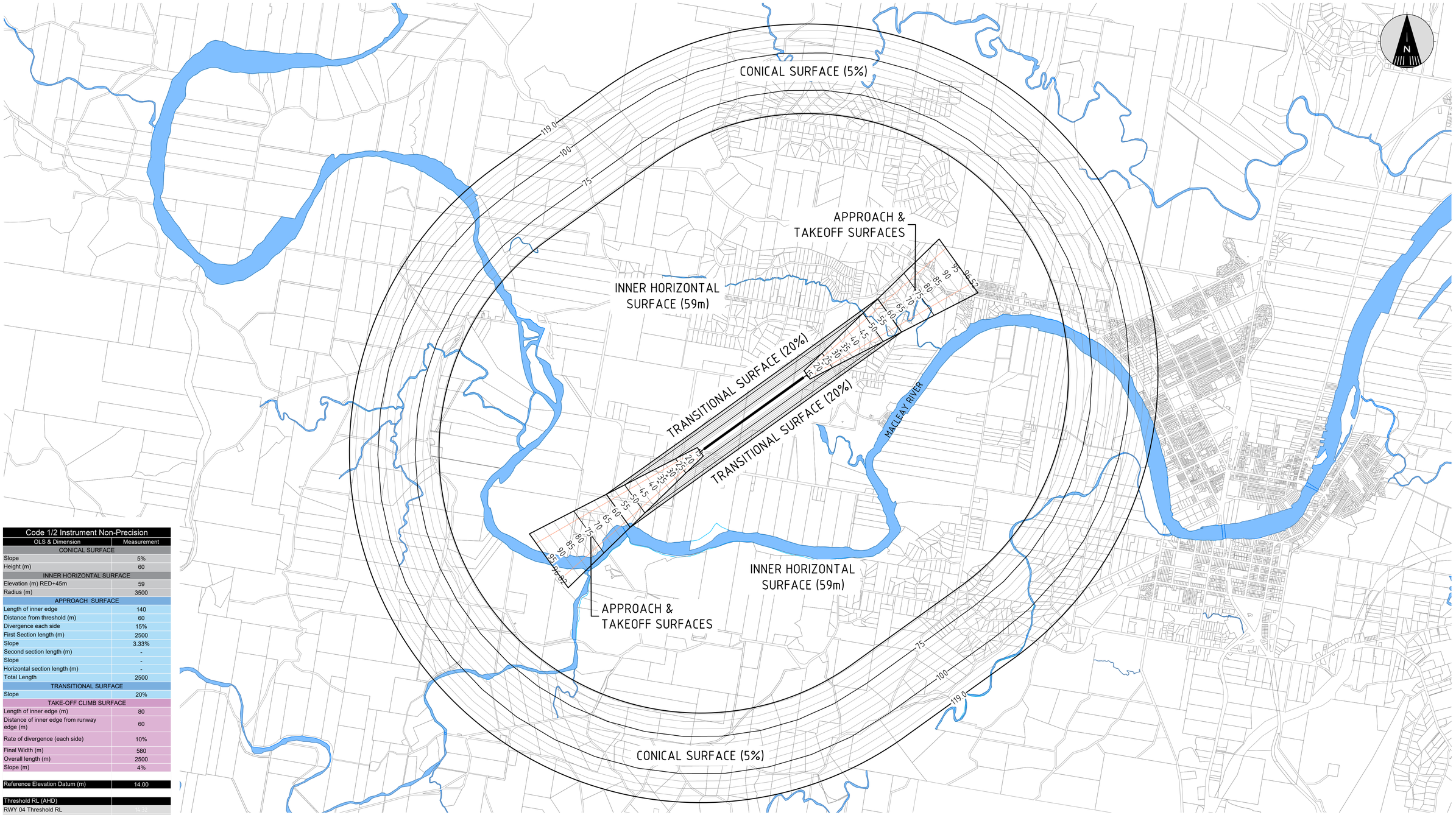
STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
OBSTACLE LIMITATION SURFACE
EXISTING RUNWAY (90m STRIP)

DRAWING No. E22099-01-YKMP-SKT-0007

REVISION A

DATE: Wednesday, 13 April 2022 9:05:00 AM BY: AARON COGHILL FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_YKMP\E22099-01-YKMP-SKT-0007 SG- OLS.DWG



Code 1/2 Instrument Non-Precision	
OLS & Dimension	Measurement
CONICAL SURFACE	
Slope	5%
Height (m)	60
INNER HORIZONTAL SURFACE	
Elevation (m) RED+45m	59
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)	14.00

Threshold RL (AHD)	
RWY 04 Threshold RL	14.97
RWY 22 Threshold RL	14.02

NOTES:

1. ALL DIMENSIONS AND DISTANCES ARE IN METRES, UNLESS OTHERWISE STATED.

2. ELEVATION DATUM - AHD.

3. OLS SURFACES IN ACCORDANCE WITH MOS PART 139 / ICAO Annex 14.

PLAN

SCALE 1:25,000

SCALE 1:25,000 (A1) 500 250 0 500 1000 1500 2000 2500m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	12.12.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	12.12.2022
DRAFTING CHECK	PJO	12.12.2022
DESIGNED	APC	12.12.2022
DESIGN CHECK	PJO	12.12.2022
VERIFIED	PJO	12.12.2022
APPROVED		

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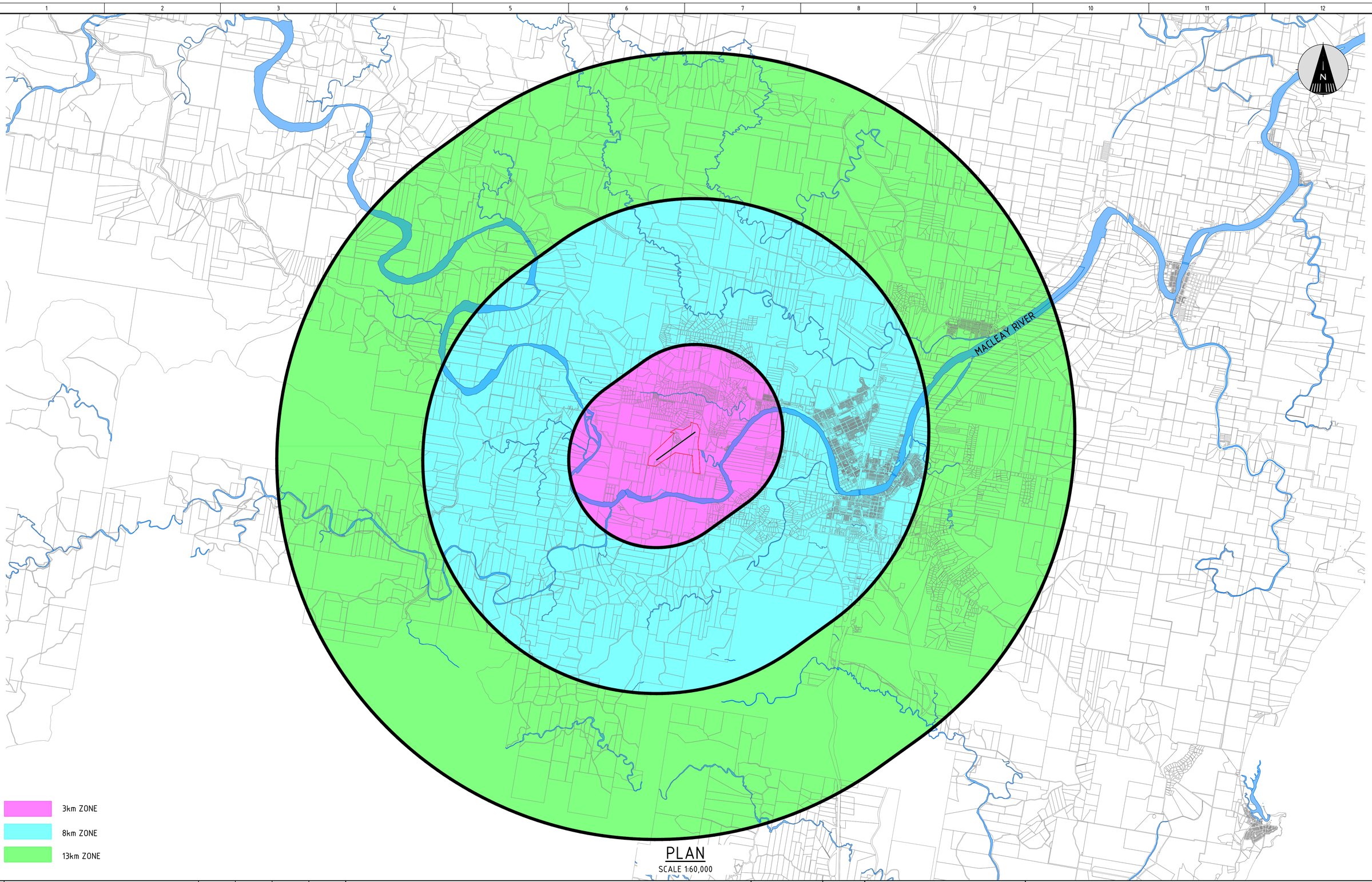
STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
OBSTACLE LIMITATION SURFACE
ULTIMATE RUNWAY (140m STRIP)

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:25,000	MGA-56	A1	E22099-01-YKMP-SKT-0011	A

DATUM AHD

DATE: Wednesday, 13 April 2022 9:05:00 AM BY: AARON COGHILL FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_YKMP\E22099-01-YKMP-SKT-00011 SG-OLS2020.DWG



PLAN
SCALE 1:60,000

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	25.08.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL
PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	25.08.2022
DRAFTING CHECK	PJO	25.08.2022
DESIGNED	APC	25.08.2022
DESIGN CHECK	PJO	25.08.2022
VERIFIED	PJO	25.08.2022
APPROVED		

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STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
WILDLIFE PROTECTION ZONES

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:60,000	MGA-56 / DATUM AHD	A1	E22099-01-YKMP-SKT-0008	A

DATE: Wednesday, 13 April 2022 9:05:00 AM BY: AARON COGHILL FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_YKMP\E22099-01-YKMP-SKT-0008 SG- WILDLIFE.DWG

PLAN

SCALE 1:10,000

LEGEND

WINDSHEAR 10m CONTOUR

WINDSHEAR 2m CONTOUR

SCALE 1:10000 (A1) 200 100 0 200 400 600 800 1000m

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	25.08.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	25.08.2022
DRAFTING CHECK	PJO	25.08.2022
DESIGNED	APC	25.08.2022
DESIGN CHECK	PJO	25.08.2022
VERIFIED	PJO	25.08.2022
APPROVED		

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STATUS
FOR INFORMATION

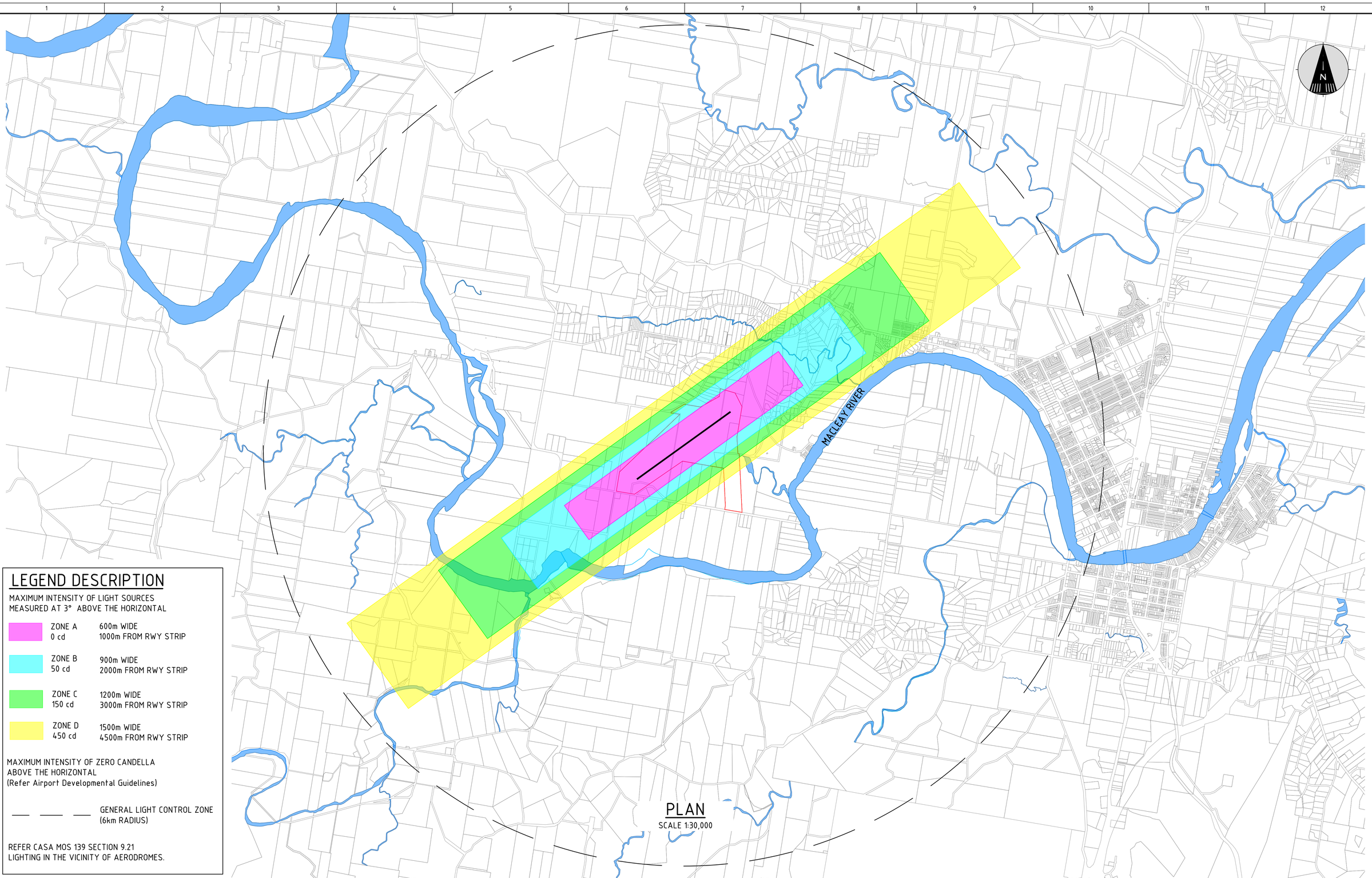
KEMPSEY AIRPORT MASTER PLAN
WIND SHEAR TRIGGER ASSESSMENT

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:10,000	MGA-56	A1	E22099-01-YKMP-SKT-0009	A
	DATUM AHD			

FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_ YKMP\E22099-01-YKMP-SKT-0009 SG- WINDSHEAR.DWG

BY: AARON COGHILL

DATE: Wednesday, 13 April 2022 9:05:00 AM



LEGEND DESCRIPTION

MAXIMUM INTENSITY OF LIGHT SOURCES
MEASURED AT 3° ABOVE THE HORIZONTAL

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

MAXIMUM INTENSITY OF ZERO CANDELLA
ABOVE THE HORIZONTAL
(Refer Airport Developmental Guidelines)

GENERAL LIGHT CONTROL ZONE
(6km RADIUS)

REFER CASA MOS 139 SECTION 9.21
LIGHTING IN THE VICINITY OF AERODROMES.

PLAN

SCALE 1:30,000

REV	DESCRIPTION	DATE	DESIGN	VERIFIED	APPROVED
A	ORIGINAL ISSUE	25.11.2022	APC	PJO	PB

KEMPSEY Shire Council

CLIENT
KEMPSEY SHIRE COUNCIL

PROJECT
KEMPSEY AIRPORT
21-33 AIRPORT RD, ALDAVILLA NSW 2440

AVIATION PROJECTS

DRAWN	APC	25.11.2022
DRAFTING CHECK	PJO	25.11.2022
DESIGNED	APC	25.11.2022
DESIGN CHECK	PJO	25.11.2022
VERIFIED	PJO	25.11.2022
APPROVED		

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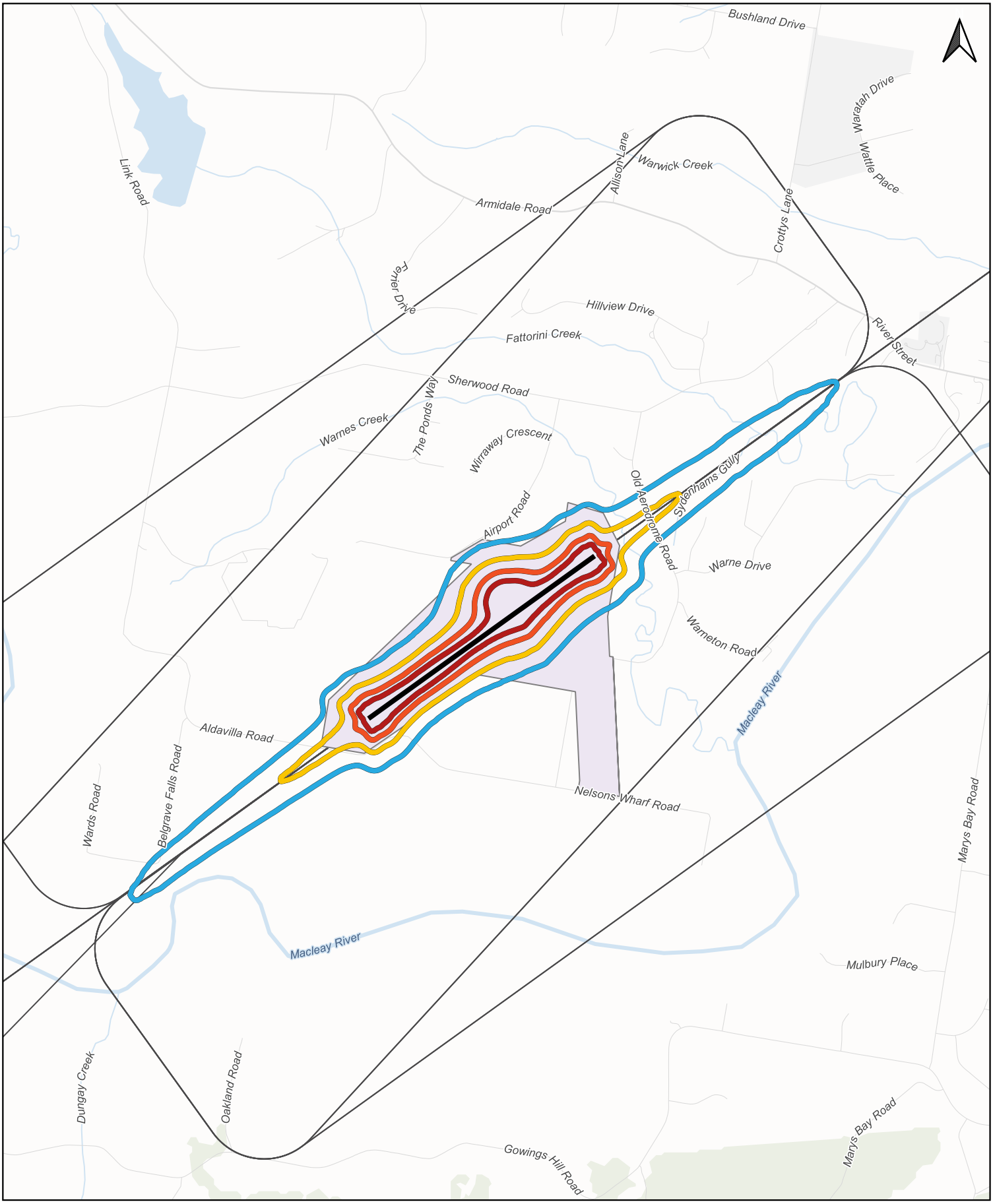
STATUS
FOR INFORMATION

KEMPSEY AIRPORT MASTER PLAN
LIGHTING IN THE VICINITY OF AERODROMES

DRAWING SCALE	GRID	ORIG. SIZE	DRAWING No.	REVISION
1:30,000	MGA-56 DATUM AHD	A1	E22099-01-YKMP-SKT-0010	A

FILE: O:\E22099 AP SUPPORT\01 KEMPSEY_ YKMP\E22099-01-YKMP-SKT-0010 SG- LIGHT.DWG
BY: AARON COGHILL
DATE: Wednesday, 13 April 2022 9:05:00 AM



KEMPSEY AIRPORT

ANEC YEAR 2042

0 0.5 1 1.5 km

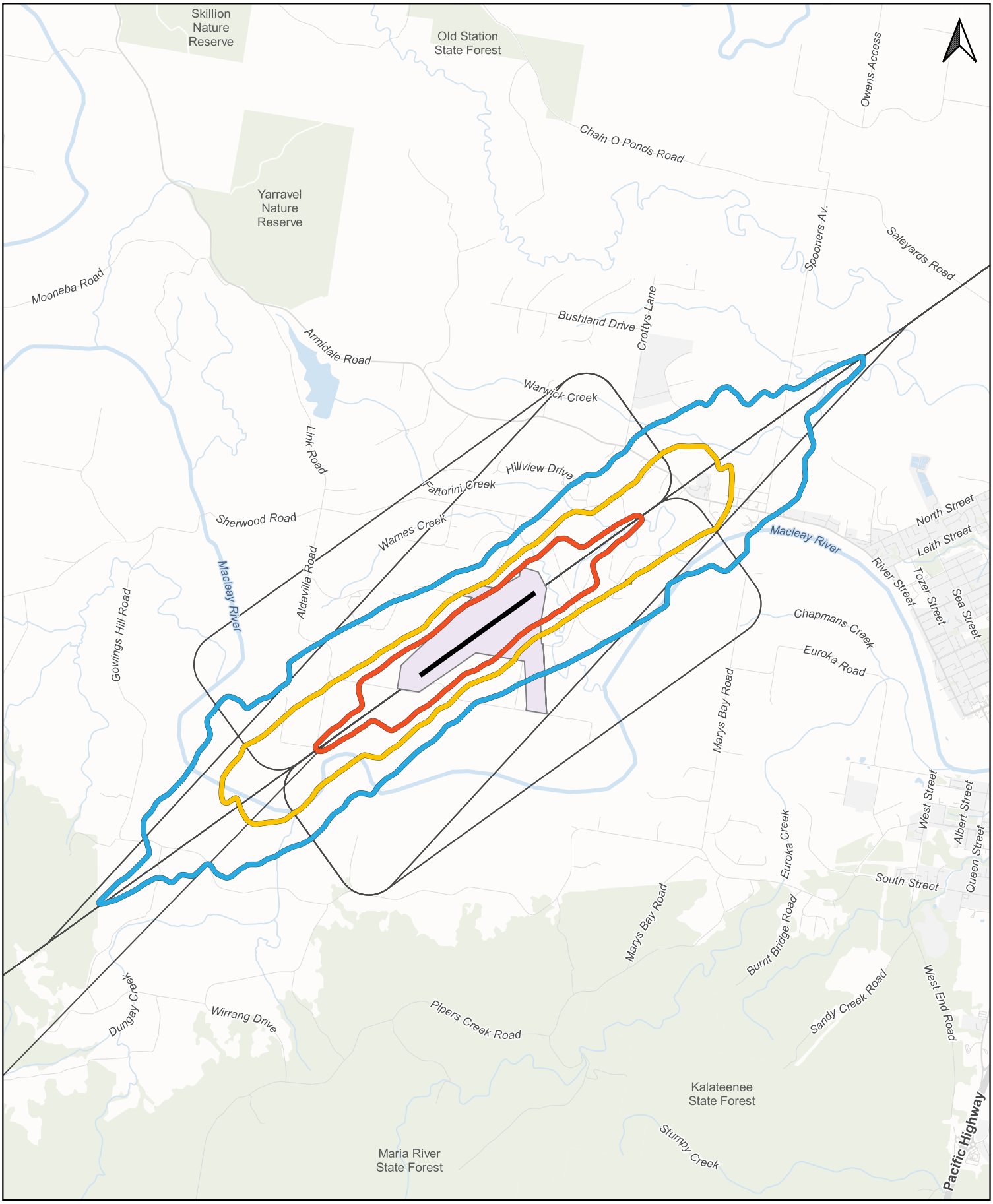
LEGEND

- Airport
- Runway
- Modelled flight paths

ANEC

- ANEC 15
- ANEC 20
- ANEC 25
- ANEC 30

Note: Locations of features are indicative only and are shown solely to demonstrate features pertinent to the noise assessment.



KEMPSEY AIRPORT

NUMBER ABOVE YEAR 2042 (N60, N65, N70)

0 1 2 3 km

LEGEND

- Airport
- Runway
- Modelled flight paths

N-above

- N70=10
- N65=10
- N60=10

Note: Locations of features are indicative only and are shown solely to demonstrate features pertinent to the noise assessment. N-above thresholds presented are lower than those promulgated by NASF Guideline A. Presented N-above contours are informative only.

AVIATION PROJECTS

Aviation. From the ground up.

Brisbane Head Office

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