JANDAKOT AIRPORT
WILDLIFE FENCING AND UNDERPASS STRATEGY

CONSERVATION MANAGEMENT PLAN
APPENDIX H

Jandakot Airport Holdings Pty Ltd
16 Eagle Drive
Jandakot WA 6164

Amendment History

Version	Issue Date	Description	Prepared By	Approved By (JAH)	Approved by (DAWE)
1	15/07/2011	First version	Joanne Wann (JAH EM)	J. Fraser	
2	22/01/2014	Major revision	Joanne Wann (JAH EM)	J. Fraser	S.Gaddes 8/4/14
3	03/06/2019	Minor amendments to reflect updated development status	Joanne Wann (JAH EM)	J. Fraser	G.Manning 19/7/19
4	23/02/2022	Minor amendments to reflect updated development status	Joanne Wann (JAH EM)	J. Fraser	TBA

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1 Introduction

This Jandakot Airport Wildlife Fencing and Underpass Strategy (FUS) addresses Condition 6 of EPBC 2009/4796 which requires the development of:

- A fauna road crossing strategy to facilitate terrestrial fauna movement; and
- A fencing strategy to facilitate terrestrial fauna movement.

The FUS aims to find a balance between maintaining wildlife corridors and facilitating wildlife movement wherever possible, and the use of fencing and other barriers to prevent wildlife accessing areas where they either face danger or themselves cause a dangerous situation (e.g. roads and aircraft movement areas).

Roads may have a significant impact on wildlife populations due to fragmentation of habitat, isolation of populations and direct mortality caused by vehicles (i.e. road-kill).

It should be noted that factors such as the planned future development of Precincts 7 and 8 by the City of Canning, ongoing management of Ken Hurst Park by the City of Melville, and potential changes in the proposed East Link Road alignment have impacted the original plans to have a continuous wildlife corridor from areas north of the Airport to Jandakot Regional Park in the South.

2 Species of Significance

Species of significance at Jandakot Airport are discussed in detail within the Jandakot Airport Conservation Management Plan. These species include:

- Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*)
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)
- Fork-tailed Swift (*Apus pacificus*)
- Peregrine Falcon (*Falco peregrinus*)
- Quenda (*Isoodon obesulus fusciventer*)
- Western Brush Wallaby (*Notamacropus irma*)
- Graceful Sun-Moth (*Synemon gratiosa*)
- The Cricket *Throscodectes xiphos*
- Perth Lined Lerista (*Lerista lineata*)
- Black-striped Snake (*Neelaps calonotos*)
- Western False Pipistrelle (*Falsistrellus mackenziei*)

Of these species, the movements of quenda and Western Brush Wallabies are most likely to be impacted by the development associated with EPBC 2009/4796 and Master Plan 2020 (see Figures 1 and 2). Both species will need to be protected from road mortalities via the use of fauna underpasses and/or fencing.

Quenda are less likely to be isolated by fencing and are more likely to be able to move to and from areas within the Airport and between neighbouring properties, depending on the fencing design and materials utilised.

The movement of Western Brush Wallabies beyond the airport boundary has been restricted for many years due to the existing perimeter security fencing. Ongoing development and fencing within the airport is likely to further restrict the movement of wallabies, and planning should consider the potential to increase opportunities for movement and dispersal between conservation precincts and neighbouring properties (i.e. Ken Hurst Park and Jandakot Regional Park's Acourt Road Reserve) in instances where it is practicably possible to do so without impacting airport security requirements.

3 Planning

When planning for new roads and transport links at Jandakot Airport, the need for fauna habitat connectivity and fencing will be addressed as a component of the road engineering design process. Each road development will be addressed individually on a case-by-case process and is ultimately approved by the Department of Infrastructure and Transport.

In situations where mitigation measures (e.g. underpasses, fences) are proposed to reduce the impact of transport corridors, the biology and ecology of the target species should be understood to ensure the structures and materials used will be the most effective in preventing such species from entering a road or other corridor.

East Link

An East Link dual carriageway is proposed; however, the final alignment has not been determined. Whilst fauna linkages and fencing will be considered in the design of the final approved alignment, it is anticipated the East Link will be fenced on both sides to prevent fauna access onto the road itself (thus minimising the number of fauna road deaths) and to protect the conservation areas from unauthorised access by members of the public.

Ken Hurst Park

Ken Hurst Park borders the north of Jandakot Airport, adjoining Conservation Precinct 1A. The properties are separated by fire breaks and a service road (Leeming Road). This service road was one option being considered for the alignment of the future East Link Road, but is unlikely to be the preferred route. Should the East Link Road be developed between the two properties, fencing and underpass requirements will be considered in the design phase. The remaining section of 1.2m stock fence on the Precinct 1A northern boundary has been upgraded to a chain mesh security fence, with wallaby gates installed to maintain existing wildlife corridors. Factors that need to be taken into account when developing future wildlife corridors include:

- Consistent feral animal management
- Security of accessible infrastructure
- Detrimental public access impacts (e.g. rubbish dumping, vandalism, off-road vehicles).

4 Fencing

Fencing is often an effective step that can be taken to protect native vegetation (i.e. habitat) and the wildlife dependent on it. How wildlife of significance will be affected by fencing (positive and negative) must also be considered.

Figure 3 shows the Proposed Fencing Plan. This includes details of existing fence structures, as well as proposed future fences. It is stressed that that proposed fencing detailed in Figure 3 is indicative only, as it is dependent on final alignments and designs of developments such as the East Link Road and the 4th Runway.

4.1 Fencing Roads

The direct relationship between roads and a sudden decline of native species has previously been documented for native species elsewhere in Australia (Harris and Bamford 2011). Fencing is often used to guide fauna to the crossing structure, but more importantly to stop fauna crossing the road. Such fencing serves not only to protect the native fauna, but in cases where larger macropod species are present, also prevents vehicle accidents and associated injuries and fatalities to people.

Fencing design and materials is generally dependent on the species present.

Even though the East Link Road alignment has not been confirmed, the bollard fence along Harvard Road (Figure 3) has been replaced with a 1500 mm high fauna exclusion fence in order to prevent macropods within Precinct 1A (primarily Western Grey Kangaroos) accessing Harvard and Mustang Roads. The fence will be replaced by a chain mesh fence

on the border between Precinct 1A and the East Link Road in conjunction with the East Link Road construction works.

Once the Harvard Road fencing and the East Link road construction and associated fencing has been completed, the existing fence that separates portions Precincts 1A (as defined in Master Plan 2020) will be removed to facilitate fauna movements between the two areas.

4.2 Fencing for Aircraft Safety Purposes

Fencing will also be utilised to prevent fauna accessing areas where they pose a risk to aircraft safety.

Whilst Western Brush Wallabies are identified as an environmental value to be managed within the Jandakot Airport CMP (which is the case in Conservation Precincts physically isolated by fencing from aircraft movement areas), they are also recognised as posing a high risk to aircraft and personnel in air movement areas (refer also to Overabundant Native Species Section within Appendix F, Feral Animal Management Plan).

Jandakot Airport controls macropods in air movement areas using methods of exclusion, deterrents and harassment. Exclusion (primarily through fencing or trapping and relocation) is the preferred approach. In recent years JAH has taken action to ensure that bushland habitats supporting macropod populations (1A, 1B and 2A) are appropriately fenced from aircraft movement areas and landside developments where they may otherwise pose a risk to aircraft safety.

5 Underpasses

It is generally recognised that where possible, underpasses should be constructed to help facilitate the potential movement of all recognised species in the area rather than being species-specific. To aid in achieving this goal, Harris and Bamford (2011) have recommended the following be incorporated in the structure design. Underpasses should:

- be placed at locations well-used by fauna
- have vegetation at both ends of the underpass
- have the sky-line visible from both ends
- contain cover inside, in the form of logs/branches (otherwise known as furniture)
- be located away from human activity
- maximise the ‘openness ratio’.

In addition to the construction of underpasses, the management of introduced predators must be considered. Previous studies associated with fauna underpasses at nearby Roe Highway have indicated that feral animals such as foxes readily use underpasses, potentially to the detriment of native fauna (Harris *et al*. 2010). Baiting of remnant vegetation in the vicinity of underpasses may assist in controlling predators, thus reducing the chance of predation.

Wildlife corridors connecting two fully fenced but neighbouring areas of bushland can be achieved by alternative solutions, such as fauna gates. Following consultation with the Department of Biodiversity, Conservation and Attractions (DBCA), ‘Wallaby gates’ were installed connecting Precinct 2A to neighbouring Acourt Road Reserve. Subsequent monitoring proved they were effective in providing a wildlife corridor for macropods, and gates have subsequently been installed on the northern boundary adjoining Ken Hurst Park.

6 Signage

In areas where significant fauna (i.e. quenda and wallabies) can access road areas and are at risk of being killed, appropriate signage will be erected to warn motorists and mitigate the risks. The need for signage will be determined by the JAH Environment Manager in response to multiple (i.e. two or more) reports of road deaths or near misses in a specific area over a six month period. Reports, which can be raised by JAH staff,

tenants or members of the public, are to be recorded in the JAH Safety Management System (SMS) as detailed below in Section 7.

7 Monitoring and Maintenance

Monitoring and maintenance is also an essential part of mitigating the impacts of road-kill as it can provide valuable information on strategies to improve future designs and also ensure structures aren't damaged and are still fulfilling their desired function.

Airside security fences and fences adjoining airside areas are inspected daily. Other fences are inspected, at a minimum, weekly. Any damage identified during inspections is repaired immediately to ensure security is maintained.

All sightings and reports of native species associated with air safety management are to be recorded in the JAH SMS. Additionally, significant species (i.e. quenda and wallabies) injured or killed on roads will be reported within the JAH SMS. The JAH Environment Manager is responsible for maintaining a record of all wildlife incidents within the JAH SMS and providing a summary in the JAH Environmental Site Register.

8 Reporting Requirements

Reporting against actions described in this Strategy will be included within the Jandakot Airport Annual Environment Report (AER). In line with the *Airports (Environmental Protection) Regulations 1996*, the AER will be submitted to the Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) by 28th October each year. A copy of the report will be provided to the Department of Agriculture, Water and the Environment (DAWE) by 28th October each year. In addition, consistent with Condition 16 of EPBC 2009/4796, JAH will report against actions of the FUS within an Annual EPBC Compliance Report and publish on the JAH website by 28th October each year.

9 Review and Amendment of Fencing and Underpass Strategy

As with the overarching Conservation Management Plan, the FUS will require regular review and amendment in order to meet practical requirements on site as changing circumstances demand.

Once amended, the FUS will be submitted to the DAWE for the Minister's approval (ref Conditions 6 and 12 of EPBC 2009/4796 approval). The approved management plan will be implemented.

The FUS will undergo a comprehensive review every 5 years. The next comprehensive review will be undertaken in 2027, however it may be reviewed earlier if new relevant information comes to light that warrants an earlier review.

10 Summary of Actions

The Table below contains a list of summary actions relating to the Jandakot Airport Wildlife Fencing and Underpass Strategy.

Table 1. Wildlife Fencing and Underpass Strategy Summary of Actions.			
Action		**Responsibility**	**Timing**
Planning and Design			
FUS1	Consider and include fencing and underpass requirements to assist fauna movements within planning and design phases of the East Link Road.	JAH MD and JAH EM	Following confirmation of final agreed alignment and prior to construction commencing.
Fencing			
FUS2	Upgrade existing exclusion fencing along Harvard Road (approx. 300m) to current JAH exclusion/Conservation Precinct specifications.	JAH EM	Dependent on alignment of East Link Rd. If East Link Rd alignment remains the same, will be undertaken in conjunction with the East Link Road construction works. If East Link Rd alignment is changed, fencing upgrade will be undertaken within 12 months of the alternative alignment being confirmed.
FUS3	Remove unnecessary fencing between Precincts 1A and 1B to facilitate wildlife movements between the two areas.	JAH EM	Within 12 months of the completion of Eastern Link Road and associated fences and underpasses and Harvard Road fencing.
Underpasses			
FUS4	Include fox baiting in vicinity of fauna underpasses that link Jandakot Airport to neighbouring property in JAH 1080 baiting program (if permitted by approving authority).	JAH EM	Within 6 months of completion of underpasses.
FUS5	Implement fox baiting in vicinity of fauna underpasses that link Jandakot Airport to neighbouring property in accordance with JAH 1080 program (if permitted by approving authority)..	JAH EM	In accordance with JAH 1080 program.
Signage			
FUS6	Install wildlife warning signs in areas where significant fauna (i.e. quenda and wallabies) can access road areas and are at risk of being killed.	JAH EM	In response to 2 or more reports in the SMS of road deaths or near misses in a specific area over a

Table 1. Wildlife Fencing and Underpass Strategy Summary of Actions.			
Action		**Responsibility**	**Timing**
			6-month period. Signage to be installed within 2 months of the requirement being identified.
Monitoring and Maintenance			
FUS7	Inspect security fencing and repair immediately if necessary.	JAH ASOs	Daily/weekly (dependent on location).
FUS8	Report in SMS all incidents associated with road deaths of significant fauna species (i.e. quenda and wallabies) and incidents associated with aircraft safety.	JAH Grounds Landside Grounds Staff, JAH ASOs and JAH EM.	Within 48 hours of incident occurring.
Reporting Requirements			
FUS9	Report against actions of the FUS within the Jandakot Airport Annual Environment Report (AER) and provide copies to DIRD and DOE.	JAH EM	28 October Annually.
FUS10	Report against actions of the FUS within an Annual Compliance Report (ref Condition 16 of EPBC 2009/4796) and publish on the JAH website.	JAH EM	28 October Annually.
Review and Amendment of FUS			
FUS11	Update and revise the existing FUS.	JAH EM	At least every 5 years (2027) or as otherwise directed by DAWE

11 References

Harris, I. and Bamford, M. (2011). Roads and Wildlife. A Review of Purpose-Built Fauna Underpasses. Report prepared by M.J. and A.R. Bamford Consulting Ecologists for: City of Armadale.

Harris I.M., Mills H.R. and Bencini R. (2010). Multiple individual southern brown bandicoots (*Isoodon obesulus fusciventer*) and foxes (*Vulpes vulpes*) use underpasses installed at a new highway in Perth, Western Australia. Wildlife Research. 37, 127-133

12 Glossary.

AER	Annual Environment Report
ASO	Airport Services Officer
ATSB	Air Transport Safety Bureau
CMP	Conservation Management Plan
DAWE	Department of Agriculture, Water and the Environment (formerly DOEE, DOE, DSEWPaC and DEWHA)
DBCA	Department of Biodiversity, Conservation and Attractions (formerly DPAW, DEC and CALM).
DEC	Department of Environment and Conservation. On 1 July 2013 the Department of Environment and Conservation separated into two agencies, the Department of Parks and Wildlife (DPAW – now DBCA) and the Department of Environment Regulation (DER – now DWER).
DEWHA	Department of Environment, Water, Heritage and the Arts (now DAWE)
DIRDC	Department of Infrastructure, Regional Development and Cities (now DITRDC)
DIT	Department of Infrastructure and Transport (now DITRDC)
DITRDC	Department of Infrastructure, Transport, Regional Development and Communications (formerly DIT, DIRD and DIRDC)
DOEE	Department of the Environment and Energy (previously DOE, DEWHA and DSEWPaC)
DPAW	Department of Parks and Wildlife (formerly DEC). On 1 July 2017 DPAW was merged with three other Departments to become DBCA.
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DAWE)
EPBC	Environmental Protection and Biodiversity Conservation Act 1999
FUS	Fencing and Underpass Strategy
JAH	Jandakot Airport Holdings
JAH EM	Jandakot Airport Holdings Environment Manager
JAH MD	Jandakot Airport Holdings Managing Director
OM	Operations Manager
SASO	Senior Airport Services Officer
SMS	Safety Management System (An access database used by JAH to record all Incidents).
SOP	Standard Operating Procedure

FIGURE 1 MASTER PLAN 2020 PRECINCT PLAN

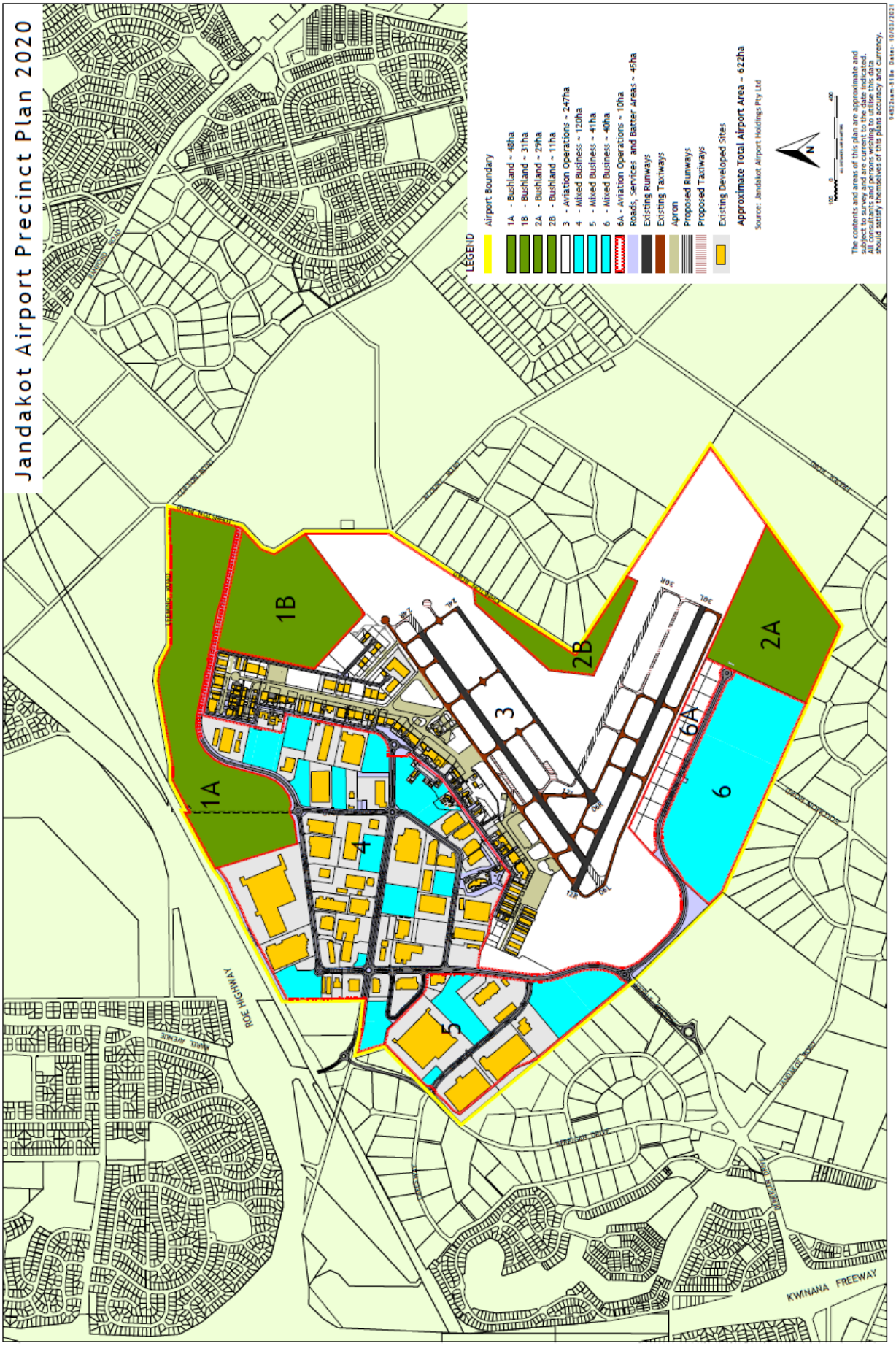

FIGURE 2. ESTIMATED CLEARING STAGES

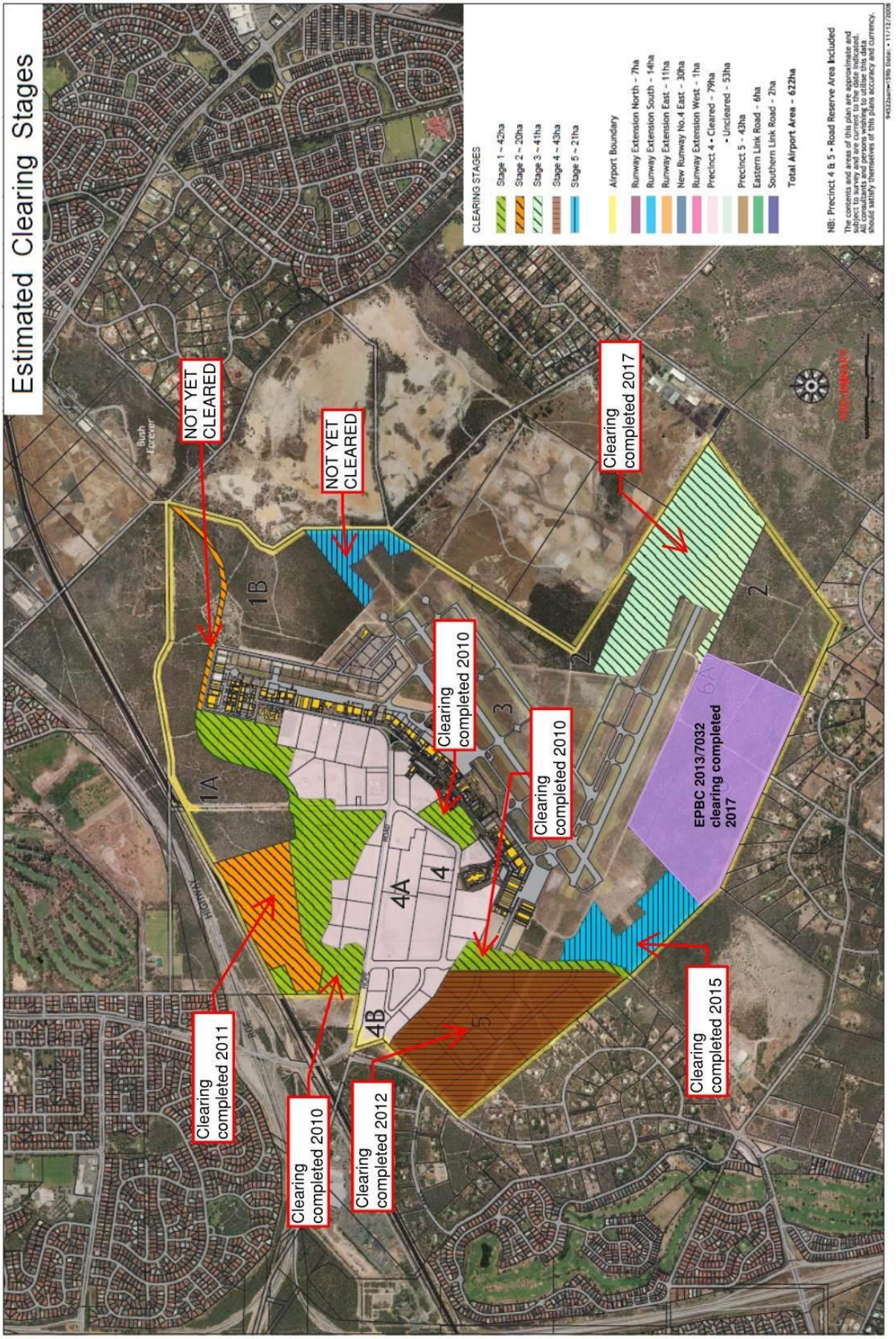

FIGURE 3. PROPOSED FENCING PLAN