



JANDAKOT AIRPORT BUSHFIRE MANAGEMENT PLAN

CONSERVATION MANAGEMENT PLAN APPENDIX G

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Amendment History

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1 Introduction

Jandakot Airport is the only general aviation airport in the Perth Metropolitan Region and covers a total area of 622 ha. Of this 622 ha, approximately 119 ha is zoned by JAH as conservation, with an additional 7 ha identified for potential runway extensions but managed for conservation in the meantime.

Jandakot Airport is vital to the local and regional economy of Western Australia. It provides facilities for tourism, pilot training, general aviation, services to the resources and pastoral sectors and important emergency services such as the Royal Flying Doctor Service, Police Air Wing, Department of Fire and Emergency Services (DFES) and aerial water bombers. In recent years, the “Jandakot City” development at Jandakot Airport has seen the establishment of new facilities not directly associated with the aviation industry, including office accommodation, warehousing and distribution, retail, and maintenance and training facilities. A map showing a general overview of the airport is provided in the Jandakot Airport Master Plan 2020, Figure 1.

On 1 July 1998 Jandakot Airport Holdings Pty Ltd (JAH) acquired a 50-year lease over Jandakot Airport from the Commonwealth Government, with an option for a 49-year lease extension. As part of the privatisation process JAH were required to produce several Management Plans overseeing environmental protection, including a Bushfire Management Plan (BFMP). In addition, EPBC 2008/4796 conditions of approval (specifically condition 6(d)(v)) requires JAH to develop a Conservation Management Plan that addressed bushfire management, including firebreaks and emergency access tracks.

This BFMP satisfies the above requirements. It is a strategic document that provides policy and direction to Jandakot Airports planning and response to bushfires, and is intricately linked with the Jandakot Airport Aerodrome Manual, the Aerodrome Emergency Plan (AEP) and the Jandakot Airport Master Plan. The BFMP identifies management strategies and responsibilities for bushfire prevention, preparedness, response and recovery.

This plan does not extend to fires originating in or entering the building line, or relate to other major emergencies. Response plans for these eventualities are provided in the AEP.

1.1 Factors Critical to a Bushfire Management Plan

A number of factors must be taken into account to ensure effective bushfire management at Jandakot Airport. These include:

- **Safety**
The safety of human life (i.e. all Jandakot Airport staff and tenants, firefighters and the public) is recognised as the highest priority in responding to a bushfire
- **Infrastructure/Property**
Infrastructure, materials and environmental assets of Jandakot Airport are vulnerable to bushfire
- **Ecological Significance**
The native vegetation in Conservation Precincts is sensitive to the effects of fire
- **Appropriate fire management methods**
Appropriate fire management methods are identified to allow for effective pre-fire risk management, fire control and post-fire rehabilitation.

1.2 Scope and Purpose

The aim of the Bushfire Management Plan is to define the minimum requirements to achieve the below objectives:

- A. protect human life
- B. protect property and assets
- C. minimise the physical and environmental impact of bushfires and damaging fire suppression techniques
- D. provide for bushfire protection work to be undertaken in an environmentally sustainable and cost effective manner
- E. maintain fire regimes that are appropriate and necessary to conserve environmental values.

1.3 Prevention, Preparedness, Response & Recovery

As with any emergency plan, the BFMP should address **PREVENTION, PREPAREDNESS, RESPONSE and RECOVERY** techniques in order to achieve the fire management objectives.

The issues can be defined as:

- 1. **Prevention:** 'Stop a fire starting in the bushland'
- 2. **Preparedness:** 'Get ready to keep the fire small'
- 3. **Response:** 'Put the fire out quickly'
- 4. **Recovery:** 'Help the bush to recover'

1.4 Fire History

A recorded fire history of the airport is available from 1981 and suggests that a number of wild fires and control burns have impacted the airport in the past. It is important to continue to map fires for fire prevention planning and for ecosystem management. Mapping of Jandakot Airport's fire history is included in Figure 2.

1.5 Fire Regulation and Legislation

Jandakot Airport is gazetted into the Metropolitan Fire District and as a result, DFES is responsible for attending to a fire. In accordance with the AEP, JAH is also to be notified of a fire on the airport.

Although the AEP addresses fire and other emergencies, bushfires are not covered in depth in the AEP and therefore this BFMP has been prepared. The AEP looks only at emergency procedures, whereas this BFMP sets out strategies for the prevention and remediation of bushfires.

1.6 Natural Environment

1.6.1 Climate

Jandakot Airport is located in a Mediterranean climate zone, where long hot summers dry out the bushland every year and natural sources of ignition (such as lightning) can occur. Jandakot Airport is located in the Lower West Fire Weather forecast district. Typically Western Australia's (WA) bushfire season in the south west starts in November and continues through to April.

Jandakot Bureau of Meteorology (BOM) station's monthly data is summarised in Table 1 below. The mean rainfall at Jandakot station is 818.4 mm of which only 130.8 mm of rainfall falls during summer months (November to April). Bushland on the airport is generally too wet to burn during the winter and spring months (May to October).

Table 1 Jandakot Weather Data Summary.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Max Temperature (°C) (1989-2021)	31.4	31.5	29.6	25.8	22.0	19.1	18.0	18.7	20.2	22.9	26.4	29.3	24.6
Highest Temperature (1989-2021)	45.7	46.6	43.0	39.2	33.4	25.6	25.9	29.4	34.2	37.4	40.3	44.0	
Mean 9am Relative Humidity (%) (1989-2010)	49	52	55	62	72	79	80	76	68	59	52	49	
Mean 3pm Relative Humidity (%) (1990 – 2010)	37	36	38	45	51	57	58	55	53	48	43	39	
Mean Monthly Rainfall (mm) (1972-2021)	15.5	18.1	16.9	41.3	105.3	151.2	174.7	127.3	83.3	47.1	27.8	10.3	818.4

A review of BOM wind roses produced from data collated at the Jandakot BoM Station (http://www.bom.gov.au/climate/averages/tables/cw_009172_All.shtml) reveals that the most common winds in the summer months are from the southeast and east in the mornings (9:00 am), with south-westerly sea breezes occurring on most warm days by mid-afternoon (3:00 pm).

1.6.2 Flora

The results of vegetation mapping (Figure 3) indicate that the Jandakot Airport Conservation Precincts are predominately a combination of *Banksia* woodlands (high-value fauna habitat) and *Melaleuca* woodlands (medium value fauna habitat).

Jandakot Airport's Conservation Precincts support four vegetation communities as described by Mattiske (2017):

- H2 - Open woodland of *Banksia attenuata* and *Banksia menziesii*
- J1 – Low open woodland of *Banksia ilicifolia* with *Banksia menziesii* and *Banksia attenuata*
- K2 - Woodland of *Melaleuca preissiana* and some *Banksia ilicifolia*
- K2 (d) – Degraded low open woodland of *Melaleuca preissiana* with some *Banksia ilicifolia*.

Areas mapped H2, J1 and K2 likely satisfy the requirements for the threatened ecological community, *Banksia Woodlands of the Swan Coastal Plain*, under section 184 of the EPBC Act

The airport also supports a Declared Rare Flora population (*Caladenia huegelii*, Grand Spider Orchid) in the Conservation Precincts and hence these areas are high priority fire protection areas. The majority of the rare orchids are located in Precinct 1A, and to a lesser extent in Precinct 1B (refer to Figure 1).

Wetland areas at the airport are illustrated in Figure 4.

1.6.3 Weeds

Weeds are rapid colonisers which compete with native species for natural resources, are often highly flammable compared to native species and are major contributors to bushfire fuel loads. Recent weed and Bushland Condition mapping of Jandakot Airport (Ecoscape 2017) revealed the Conservation Precincts were generally in Very Good to Excellent

condition, with around 98.4% of the grid points having less than 20% weed cover. A total of eighteen target species were recorded during the survey. The most dominant weed species were Wild Gladiolus (*Gladiolus caryophyllaceus*) and Perennial Veldt Grass (*Ehrharta calycina*). Other major weed species were Annual Veldt Grass (*Ehrharta longifolia*), Victorian Tea Tree (*Leptospermum laevigatum*), Sydney Golden Wattle (*Acacia longifolia*) and Rose Pelargonium (*Pelargonium capitatum*).

Jandakot Airport has a Weed Management Plan (Conservation Management Plan Appendix B). An annual weed control program targets high priority weed species and areas where weed cover is greater than 20%.

1.6.4 Fauna

The bushland and grounds areas of the airport contain an abundance of fauna. A number of "Species of Significance" have been identified at Jandakot Airport and much of the remaining bushland has been mapped as potential habitat for these species (Western Wildlife 2017).

- Carnaby's Black-cockatoo (*Calyptorhynchus latirostris*)
- Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*)

Other conservation significant fauna potentially occurring at Jandakot Airport include:

- The EPBC Act listed migratory species, the Fork-tailed Swift (*Apus pacificus*) – likely to fly over the airport rather than visit and utilise habitat noting there are no records of this species at the airport or nearby
- The Rainbow Bee-eater (*Merops ornatus*) – seasonal visitor listed under the *Biodiversity Conservation Act 2016* (BC Act)
- The Peregrine Falcon (*Falco peregrinus*) - listed under the BC Act, has not previously been recorded at Jandakot Airport but may potentially occur as a foraging, non-breeding visitor

Eight Priority Species listed by DBCA that occur, or potentially occur, at Jandakot Airport are:

- Western Brush Wallaby (*Notamacropus irma*) - a Priority 4 species present in Precincts 1A, 1B and 2A
- Quenda (*Isodon obesulus*) - a Priority 4 species common throughout much of the airport, including developed areas
- Graceful Sun-moth (*Synemon gratiosa*) - a Priority 4 species previously recorded
- Katydid or Bush Cricket (*Throscodectes xiphos*) - a Priority 1 species not previously recorded
- Perth Lined Lerista (*Lerista lineata*) – a Priority 3 species previously recorded
- Jewelled Ctenotus (*Ctenotus gemmula*) - a Priority 3 species not previously recorded
- Black-striped Snake (*Neelaps calonotos*) - a Priority 3 species previously recorded
- Western False Pipistrelle (*Falsistrellus mackenziei*) - a Priority 4 species not previously recorded

Habitat maps for priority species are contained Jandakot Airport Conservation Management Plan.

1.7 Jandakot Airport Areas

To further enhance the efficiency and effectiveness of bushfire management the Jandakot Airport property can be broadly divided into three sections, as described below: (Refer to Figure 1)

Aviation Operations

- Aircraft Parking and Aprons
- Taxiways and Runways (shown in Figure 2 as a Restricted Area)
- Infrastructure associated with or immediately adjacent to 'Airside' areas, such as hangars, aviation maintenance and support businesses, flying schools etc.

Landside Developments

- Facilities and businesses not adjoining 'Airside' and not in direct support of airside operations
- New "Jandakot City" commercial developments (Precincts 4, 5 and 6/6A)

Conservation Precincts

- 119 ha of bushland exists at the airport under conservation protection, including:
 - Precinct 1A: Existing Conservation, 48 ha
 - Precinct 1B: Existing Conservation, 31 ha
 - Precinct 2A: Existing Conservation, 29 ha
 - Precinct 2B: Existing Conservation, 11 ha
- One runway undershoot and overshoot area – to be managed as Conservation until required for runway extensions and operations, 7 ha.

1.8 Areas of Natural Significance

Whilst all bushland in Jandakot Airport's Conservation Precincts is to be protected, as far as practicably possible, from the impacts of bushfires, some areas have particular significance.

Rare Orchid Habitat Precinct 1A and 1B. Precinct 1A, and to a lesser extent Precinct 1B support a significant population of *Caladenia huegelii* (Refer Figure 1). A single plant exists in Precinct 2A. The majority of individual plants have been identified with red pin tags.

Dieback Areas - *Phytophthora cinnamomi* is a soil borne plant disease that infects the root systems of some plant species and causes them to rot. At Jandakot Airport there are four identified dieback sites, with two being located in the wetlands (Refer Figure 5).

Wetlands – Wetlands are seasonally waterlogged basins that arise as a result of the natural infilling of silt and decaying vegetation that occurs over the lifetime of a wetland or through gradual drying of the climate over time. Figure 4 shows wetland locations on Jandakot Airport.

UWPCA Boundary – Jandakot Airport is located on the Jandakot Groundwater Mound and lies partially within the Underground Water Protection Control Area (UWPCA) (Refer Figure 6).

1.9 Prescribed Burning

The fire history of Jandakot Airport indicates that some level of prescribed burning likely occurred in the past. However, the current approach at Jandakot Airport is for no prescribed burning to occur. This is primarily due to the unknown impacts that prescribed burns may have on the rare orchids at Jandakot Airport, as well as significant fauna species.

However, if more information comes to light, JAH will be guided by relevant experts as to whether prescribed burning is beneficial for maintaining the ecological values of the native vegetation.

2 Prevention

Definition

Fire prevention is proactive and concerned with stopping fires from starting in bushland and minimising the impact of any fires that do start.

Objectives

- To reduce the impact, intensity and frequency of fire within bushland at Jandakot Airport
- To educate stakeholders about bushfire hazards and effective management
- To identify likely sources of fire at Jandakot Airport through prior fire history of the area and use these to implement prevention measures.

2.1 Sources of Fire

Likely sources of fire at Jandakot Airport can be divided into three areas.

2.1.1 External Activities

- Fire encroaching from neighbouring properties
- Arson (including dumping and torching vehicles)
- Accidental as a result of high-risk unauthorised public activities (e.g. trail bike/4WD trespassers, camping etc.)

2.1.2 Natural Phenomena

- Lightning Strikes associated with dry weather conditions

2.1.3 Airport Activities

- Vehicles or Mechanical Equipment
- Electrical faults associated with power supply
- Green waste stockpiles
- Building fires from tenant activities (e.g. hot works)
- Crashes, aircraft or vehicular

Keeping a record of sources of previous fires assists with prevention planning and risk assessment.

2.2 Prevention Measures

Much of the fire exclusion principles at Jandakot Airport relate to control of access into the site.

Community education, prevention of fuel load build up, and extra care taken during hot summer days will also help to lower the chance of bushfire at Jandakot.

2.2.1 Controlling Access

Controlling access to Jandakot Airport's Bushland areas to prevent the entry of unauthorised vehicles and persons will assist with reducing the likelihood of arson or trespass related fires. All Conservation Precincts are fully fenced to prevent unauthorised entry and public access. Most fences are 1800 mm chain mesh security fences.

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 gates are secured with master-keyed padlocks, with access only permitted to approved personnel, contractors and Emergency Services (see Section 3.2).

2.2.2 Fire Danger Ratings and Total Fire Bans

As most fires start on “Severe”, “Extreme” or “Catastrophic” fire danger days, especially during school holidays, special notice should be taken during these times.

JAH Staff will ensure that activities prohibited during total fire bans are not undertaken (by either JAH or airport tenants) unless exemptions are obtained.

FIRE DANGER RATING
Category
CATASTROPHIC (CODE RED)
EXTREME
SEVERE
VERY HIGH
HIGH
LOW – MODERATE

2.2.3 Stakeholder Consultation and Education

Informing neighbours about fire prevention practices reduces the risk of fires starting on neighbouring properties and subsequently encroaching on the airport. The City of Cockburn sends out flyers and places adverts and articles in the local newsletters and on the City of Cockburn website.

Liaising with other authorities, such as DFES and the City of Cockburn, will help provide a more uniform and united approach to fire prevention. In the event of an issue arising that warrants wider consultation with external stakeholders, liaison may occur either directly with the relevant agency, via the Jandakot Airport Community Aviation Consultation Group (CACG) or via the Aerodrome Emergency Committee (AEC).

2.2.4 Weed Management

Weeds are a major part of fire prevention management as they are capable of thickly infesting a site and significantly raising the fuel loading in a bushland area. Introduced grasses such as veldt grass are a particular risk. Jandakot Airport has a control program in place for bushland weeds and aims to keep the weed cover of any given area below 20%.

Weeds tend to occur in disturbed areas, especially after a fire, and can be controlled by selective herbicide spraying and by protecting the integrity of the bushland. Jandakot Airport has a comprehensive weed management program within its Weed Management Plan. In the event of a fire that results in a change to weed priorities at the airport, the Weed management Plan will be reviewed accordingly.

2.2.5 Separation of Sources of Risk

In the case of Jandakot Airport, neighbouring properties and publicly accessible roads form a high fire risk and should be separated from airport bushland. Similarly airport bushland presents a fire hazard to the building line and vice versa.

Firebreaks, low vegetation areas and fences separate airport bushland from neighbouring properties to reduce the chances of fires spreading into bushland areas. Where the centre grass and apron areas do not separate the bushland from the building line, low

vegetation zones, firebreaks or fences should be put in place to separate the Jandakot Airport building line and bushland.

3 Preparedness

Definition

Preparing for the fire season increases the likelihood of containing fire, helping fire fighters to effectively and safely fight fires and minimising environmental disturbance caused by fire.

Objective

To ensure the airport is prepared to allow a fast and effective response to any fire which may start.

3.1 Firebreaks & Tracks:

The provision of effective fire access tracks is important in the containment of bushfires, as they allow for access to and egress from a fire and provide a safe combat area. For this reason the provision of access tracks is a valuable bushland management tool.

Three firebreak/track types are provided at Jandakot Airport:

1. **Firebreaks** and Emergency Access Tracks – Cadastral boundary tracks and other internal tracks. These conform to specifications detailed in the City of Cockburn Fire Control Order and DFES requirements. They are typically hardened with limestone, a minimum 3 m wide and suitable for 2WD and Emergency Vehicle access. These tracks are shown in Pink in Figure 7a.
2. **Maintenance tracks** – Designed for bushland maintenance by JAH staff and approved contractors only. These tracks are not regularly maintained and may not be trafficable in all conditions and they are generally not suitable for use during a fire. These tracks are shown in green and purple in Figure 7a.
3. **Primary Firebreaks** – These Firebreaks are wide areas (typically 10-15 m minimum) that provide increased fire protection (compared to standard firebreaks) of essential services (e.g. water and electricity supply lines) and significant environmental values (i.e. rare orchids) in the event of a bushfire. Though traversable by 4WD, these areas are not maintained for vehicle access. There is currently only one 'Primary' firebreak at Jandakot Airport within Precinct 1A, shown in Figure 7a.

3.1.1 Track creation and maintenance:

Fire tracks at Jandakot Airport allow for compartmentalisation of the bushland. This reduces the area burnt during fire by providing fire fighting access and/or back-burning points in between blocks. Any future track construction should consider both fire fighting and environmental requirements, for instance a narrower slashed access track may be more appropriate for a smaller area than a wide bare firebreak.

The purpose of fire access tracks

- To allow fire fighting vehicles access for a direct attack on the fire
- To provide a fire line to control the use of back burning
- To be trafficable in all conditions.

Fire fighting considerations

- A track's usefulness during a fire incident
- Avoid placing tracks in dangerous areas such as slopes and high fuel areas
- Tracks should have both access and egress
- Gates should be master keyed

- Vegetation and weeds beside the track should be slashed. All overhanging branches should be removed
- Tracks do not necessarily need to be bare earth.

Environmental Considerations

- To avoid erosion, tracks should follow contour lines and allow 'all weather' access
- The number of tracks should be kept to a minimum to protect bushland integrity
- Fire Access Tracks should not be sited in Dieback areas where possible. When fire track access through dieback infested areas is unavoidable, the track should be hardstanded with limestone or similar hardened material to prevent vehicles picking up small particles of soil.

3.1.2 Control of Access to tracks

One method of reducing the fire risk is through control of access to the airport. Section 2.2.1 above details fencing and inspections. Figure 7b shows the Jandakot Airport Fencing Plan, which includes details of both existing and proposed fence structures associated with Bushland areas.

3.2 Gates

Tracks should be fully accessible to allow a quick response to fire, but where gates are necessary for security purposes the locks should be master keyed and keys held by the Duty Reporting Officer (DRO), Operations Manager and Facilities Manager to allow quick and easy access. Due to the potentially high number of DFES responding stations, the issuing of gate keys to DFES is not considered necessary for emergency fire response, noting DFES units all carry tools to quickly break padlocks. Gate locations are shown on Figures 7a and 7b.

3.3 Water Supply

- Fire hydrants are available at Jandakot Airport (see Figures 8). Additional fire hydrants associated with new commercial developments may be installed when required.
- DFES was previously responsible for inspection/testing of 'Town Main' hydrants. They have recently advised JAH that they will no longer be undertaking hydrant inspections and testing, so JAH will take on that responsibility, along with all other hydrants outside of leased boundaries. Hydrants installed within leased boundaries to service individual lessee are the responsibility of the lessee for testing and maintenance.
- There are three accessible groundwater abstraction bores with BIC coupling but these may not be available at all times as they are dependent upon mains power.
- Extra Water Corporation hydrants may be available along Leeming and Johnson Roads.
- Water supply is limited within and in the immediate proximity to Jandakot Airport Bushland.

3.4 JAH Staff Training and Bushfire Awareness

The BFMP is made available to all staff with electronic copies available on the JAH website and the JAH internal electronic database. Issues and actions relevant to the BFMP are addressed as required via the JAH Safety Management System meetings, which are held monthly.

All staff receive inductions and training appropriate to their role. JAH staff are not the first response for fire fighting, and JAH only provide support to DFES. Groundstaff are not required to become actively involved in fire fighting.

3.4.1 Identification

Uniforms are provided for JAH staff that may be called on to assist DFES in the event of a fire. All personnel are required to be wearing long sleeved shirts and long trousers or jeans, sturdy shoes and wool or cotton socks prior to helping with a fire.

All personnel involved in fire procedures should be identifiable. Unauthorised or non-identified personnel should be removed from the fire area by the incident controller for security and safety reasons.

3.5 **Equipment**

Although JAH staff are not required to be actively involved in fire fighting, JAH has equipment that may be available for use by JAH or other emergency services in the event of a fire. This includes:

- 5000 L tank (removable) + truck
- 1x4WD with 800 L water tank (removable) and pump.
- 5x4WDs without water tanks
- 1 Tractor
- 1 x FEL
- Access hydrants, pumps and bores.

Equipment and vehicles that may potentially be utilised in bushfire response are maintained in good working order in line with JAH maintenance procedures. Any equipment and vehicle faults should be reported immediately to ensure prompt repairs can be made.

3.6 **Maps**

Maps (Bushfire Response Plan, Fire Hydrants and priority areas) will be reviewed annually and updated if required. Updated maps will be forwarded to DFES. It is noted that DFES develop their own map-based Bushfire Response Plans for Jandakot Airport and surrounding areas.

3.7 **Communication with other stakeholders**

DFES response stations undertake familiarisation visits to Jandakot Airport and surrounding bushland on an annual basis to assist with preparation in the event of a fire. These familiarisation tours are organised and managed by DFES and typically take place in the lead up to or early stages of the fire season, depending on available resources. In the event that major changes occur at the airport, JAH liaises with DFES prior to the familiarisation tours in order to provide the relevant updated information.

Advantage should be taken of the Aerodrome Emergency Committee (AEC) meetings of major stakeholders to discuss updates to the BFMP annually before the fire season.

Through the BFMP and annual tours, DFES personnel should be made aware of the various environmental issues/values at Jandakot Airport.

4 Response

Definition

It is important that the response to a fire is well planned and coordinated. This ensures that the available resources are used effectively, adequate safety measures are in place, high priority areas are given the maximum protection possible and that personnel are confident and prepared to deal with the situation. At Jandakot Airport response to a fire is carried out and controlled by DFES.

Objective

To identify and implement response methods that will contain and extinguish fires quickly, minimise environmental impacts and ensure effective communication between the attending authorities.

4.1 Keeping the fire small

4.1.1 Rapid Response

Rapid response will increase the likelihood of containing and extinguishing a fire quickly. In order to achieve this, measures must be put in place to raise the alarm, and for the appropriate personnel to be confident in their roles and responsibilities once a fire is reported.

- Fire Spotting

During office hours JAH ground staff, the control tower and tenants will be on hand to spot fires that start in airport bushland or that are approaching airport land, but after hours and on public holidays JAH relies upon tenants and neighbours notifying DFES and subsequently JAH to allow for a quick response.

Given this, a bushfire awareness campaign to highlight the importance of reporting fires and to distribute the correct contact details would increase the likelihood of alarm being raised and allowing the fire control process to be started.

- Reporting a fire

A methodology for reporting emergencies is given in the Jandakot Airport Aerodrome Manual and Jandakot Aerodrome Emergency Plan and is included overleaf. Fires are reported first to DFES on the 000 number, and DFES then notify JAH through the emergency group paging number.

4.2 Response Procedures

Once a fire is reported the appropriate response plan must be enabled as below:

Section 5:11 of the Jandakot Airport Aerodrome Emergency Plan V1.1

Fire Hazard Event	FIRE
Emergency Description	An actual or impending bush or property fire that impacts and/or causes or threatens to cause injury, loss of life and/or damage to property or bush that may require a response.
Emergency Triggers	<ul style="list-style-type: none"> Smoke or fire is observed. Buildings are being evacuated as a result of a fire alarm.
Emergency Activation	Person or organisation that becomes aware of the situation and advises DFES (000-Fire) and/or JAH.
Activation Process	<p>If ATC is advised by pilots of a fire on or near the Airport, or fire is observed from the ATC Tower, ATC will:</p> <ul style="list-style-type: none"> Advise DFES (000-Fire) Advise JAH (pager message "BUSHFIRE" or "BUILDING FIRE" via 9485 7555) <p>If a call is made to 000-Fire:</p> <ul style="list-style-type: none"> DFES will activate WA Police and St John as required DFES will contact JAH if airside access is required*
Controlling Agency	DFES
Hazard Management Agency	DFES
Combat Agencies	<ul style="list-style-type: none"> Volunteer Fire Service Brigade / Volunteer Emergency Service unit WA Police St John Ambulance
Support Agencies	<ul style="list-style-type: none"> JAH
Staging Area	<p>Determined by DFES.</p> <p>EGCP may be initiated if the response operation becomes complex and/or airside access is required.</p>
Response	<ul style="list-style-type: none"> DFES/WA Police: incident site isolated. DFES: evacuation to remove people from the area threatened by the fire. DFES: confine and extinguish fire. WA Police: traffic and crowd control of incident site. ST JOHN: medical treatment of casualties and transport to hospitals as required. JAH: isolate electrical supply if required. JAH: advise ATC if the fire is likely to impact airside or aircraft operations. JAH: Advise Brookfield Rail if there is the potential to affect rail line or train operations JAH: Advise APT Parmelia if fire is close to the gas pipeline (adjacent to the railway tracks along Roe Highway). APT Parmelia: when requested, dispatch technician to airport to assist DFES if fire is, or is likely to be, within 50 m of the pipeline. <p>All fire response is based on priorities of:</p> <ul style="list-style-type: none"> Life Property Critical Infrastructure Environment
Public Information	<ul style="list-style-type: none"> Bushfire – DFES Structure fire – DFES in conjunction with WA Police (if unrelated to bushfire)
Stand Down	Incident Controller
Response Plan	STATE HAZARD PLAN – FIRE
Supporting Documents	Jandakot Airport Bushfire Management Plan (appendix to Conservation Management Plan)

* DFES notifies DRO Emergency group (Pager 9485 7555). The DRO emergency group pager number will alert both the Duty Reporting Officer & the Operations Manager.

4.2.1 Assembly at the Emergency Gate Control Post (EGCP)

The EGCP is the standard mobilisation point for any emergency on the airport, and is familiar to all emergency services. Details relating to the EGCP are addressed within Section 4.6 of the AEP. It should be noted however that the EGCP would only be an appropriate meeting location for bushfires past this point within the Airside area (e.g. Precinct 2B). Details regarding Forward Command Posts are addressed in Section 4.7 of the AEP.

Access to Jandakot Airport is from Karel Avenue (primary access), Pilatus Street or Berrigan Drive.



Emergency Access to the EGCP.

4.2.2 Fire Incident Controller

On the arrival of DFES, the Chief Fire Control Officer will assume the Incident Controller position. The Incident Controller then has the power to determine with discretion the fire suppression techniques which will be used.

4.2.3 Standard Mobilisation

The Incident Controller determines the DFES resources required to respond to a bushfire emergency at Jandakot Airport based on availability and other priorities.

4.3 **Protection of the Environment**

4.3.1 Dieback Hygiene

There are known areas of dieback infection at Jandakot Airport so care is needed when dealing with fire control and water use. The effects of fire are short term but the effects of Dieback infection are permanent and irreversible.

The following guidelines address dieback spread during bushfire response (and recovery):

- Try to keep all machinery operations in one area, either in dieback infested or uninfested areas.
- Minimise the entry of machinery or vehicles into bushland areas, or keep to marked access tracks.
- During earthworks take care not to push dieback infested soil into uninfested areas.
- Avoid areas where soil can be picked up, e.g. muddy or wet areas, or clean soil off vehicles.

4.3.2 Fire Retardants

Foam

The use of foam and other water additives is very effective, however there are concerns about the effects that foam may have on the surrounding environment. Foam is generally not recommended for use near swampy areas or wetlands as it can alter nutrient and chemical balances and be harmful to fauna such as amphibians. Jandakot Airport bushland contains several wetland areas (see Figure 4) and foam should not be used in these locations if this can be avoided. Ultimately, the use of foams and other fire retardants will be at the discretion of the Incident Controller.

Back Burning

Back burning increases the area of bushland burnt so other direct methods of fire fighting should be considered before back burning. However, the use of back burning can prevent the spread of fire across compartments and so reduce the total area of bushland that burns during one incident. Back burning is a powerful tool for fire fighting but one that should be undertaken with care at Jandakot Airport at the discretion of the Incident Controller.

Priority Protection Areas

The Conservation Precincts are all priority protection areas, with Precincts 1A and 1B considered the highest priority due to the presence of Declared Rare Flora (Refer Figure 1).

4.3.3 Use of Vehicles During Fire Operations

All fire vehicles should remain on the fire access tracks during all fire operations as most areas at Jandakot Airport are extremely sandy and may cause vehicles to be bogged.

4.3.4 Mop up strategies

- **Responsibilities of DFES**

DFES is responsible for the fire procedures and fire response until the Incident Controller declares 'Stand Down'.

- **Duties and Responsibilities of JAH**

A staff member should remain on hand until the possibility of re-ignition is deemed unlikely.

- **Extinguishing Smouldering Trees**

During mop-up once a fire has been contained, trees within the 100 m fire edge must be extinguished before the fire ground can be left. Effort should be made to extinguish these trees using water rather than cutting them down.

- **Fauna Rescue**

The safety of people involved should not be compromised by the urgency of animal rescue. The fire ground must not be entered without the permission and knowledge

of the Incident Controller until the area is deemed "Safe", and then not without the knowledge and permission of JAH.

Should fire fighting personnel detect an injured animal, and the animal can be rescued without endangering personnel, a rescue should be attempted and the animal should be placed into suitable care. The JAH Environmental Manager should be notified, and can be called upon to facilitate the rescue. In the event the Environment Manager is unavailable, the DBCA-managed Wildcare Helpline should be contacted for assistance on (08) 9474 9055.

5 Recovery

Definition:

Recovery is the process of returning the affected area back to normal after the impact of a fire. It can include short-term and long-term activities. The main responsibility for post fire recovery rests with JAH.

Objectives

- To determine post fire strategies to rehabilitate bushland post fire
- To debrief all parties involved on the result of the fire fighting effort
- Adequately record information about the fire
- Review the plan and update as necessary

5.1 Debriefing

Ideally all stakeholders involved in the development of the BFMP should be involved in the debriefing sessions after a fire. Debriefing after an emergency incident will be consistent with the AEP. At minimum, a debrief should be held with all parties involved in combating the fire to discuss changes and improvements which should be made to the plan to improve its efficiency. The debriefing should be held as soon after the event as possible for maximum effectiveness.

5.2 Investigating the cause

An investigation of the cause of the fire should be undertaken where possible as this will assist with the prevention of future fires, and possibly the apprehension of offenders. Where arson is suspected the DFES Incident Controller will notify the Fire Investigation Team.

5.3 Recording the Fire

Keeping adequate records of the extent and impact of fire assists with both planning for fire prevention and management of bushland. Responsibility for keeping these records rests with JAH. Records for each fire should include:

- The area covered
- The degree of damage
- The source of the fire
- Date and time
- How the fire was reported
- The Fire Danger Index and weather conditions on the day
- The success or otherwise of preparedness initiatives
- The fire response activity undertaken and the rehabilitation required.

Where possible maps should be prepared and photographs taken as they will provide a visual record of the fire and recovery.

5.4 Safety

After the fire is deemed “Safe” areas and facilities (including roads and tracks) should be assessed for safety. Access to the area should be determined and remediation of any threat should occur as soon as possible.

5.5 Post Fire Fauna and Flora Management

Post fire rehabilitation requirements will be dependent on a number of factors such as the habitat/vegetation type impacted, the size of the fire, the intensity of the fire, the time of year and the success of natural post-fire regeneration. Therefore, it is not possible to develop a detailed post-fire rehabilitation until after an event has occurred. The factors below will be taken into account when developing a post-fire rehabilitation plan.

5.5.1 Assess the need for fauna monitoring

In cases of severe fire damage where large expanses of bushland or especially significant areas are burnt, provisions may need to be made for surviving native species (e.g. temporary supplementary feeding), or monitoring undertaken to assess the impacts to the relevant species/populations.

5.5.2 Assess the requirement for revegetation initiatives

In cases of severe fire damage, revegetation work may be required to protect soil from erosion and repair bushland. The Jandakot Airport Rehabilitation and Revegetation Guidelines (CMP Appendix D) have been developed to assist in the planning of post-fire revegetation requirements.

Should post fire assessment and/or monitoring determine that rehabilitation and revegetation management is warranted, a site-specific rehabilitation and revegetation plan will be developed and implemented.

6 Reporting Requirements

Reporting against actions described in this plan will be included within the Jandakot Airport Annual Environment Report (AER). In line with the *Airports (Environment Protection) Regulations 1997*, 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.

7 Review and Amendment of Bushfire Management Plan

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

Once amended, the Bushfire Management Plan 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 JAH Environment Manager will review this Bushfire Management Plan every five years to ensure that it is up to date and its control measures are effective. However, if new relevant information comes to light before the five-yearly review is undertaken (e.g. significant changes to maps, following the occurrence of a significant bushfire etc.), a review of the Bushfire Management Plan will occur before the scheduled action.

8 Summary of Actions

The tables below contains a list of actions relating to the Bushfire Management Plan

Table 2. Bushfire Management Plan –Actions.			
Action		Responsibility	Timing
Preventative Actions			
Controlling Access to Bushland Areas			
BFMP1	Inspect airside security fencing daily (other fences weekly) and repair immediately if necessary.	JAH ASOs (airside) and JAH Senior Groundsman (landside).	Daily/weekly (dependent on location).
Fire Danger Ratings and Total Fire Bans			
BFMP2	Total Fire Bans will be adhered to unless an exemption permit is obtained.	All Staff and Tenants	During Total Fire Bans.
Stakeholder Consultation and Education			
BFMP3	Publish the BFMP on the JAH website and make available to JAH staff on internal electronic database.	JAH EM	Achieved. Version on website be replaced with updated BFMP within 4 weeks of BFMP review completion (or, if required, within 4 weeks of endorsement by relevant government regulator).
BFMP4	Forward a copy of the BFMP to DFES following any amendments.	JAH EM assisted by JAH OC	Within 4 weeks of BFMP review completion (or, if required, within 4 weeks of endorsement by relevant government regulator).
Weed Management Program			
BFMP5	Control weeds that may contribute to increased fire risk by implementing the Jandakot Airport Weed Management Plan. Refer CMP Appendix B Weed Management Plan.	Refer CMP Appendix B Weed Management Plan	Refer CMP Appendix B Weed Management Plan.
Separation of Sources of Fire Risk			
BFMP6	Ensure the interface between the building line and bushland is a low vegetation area.	JAH OM (supported by JAH EM) for Airside Areas. JAH IM (supported by JAH EM) for Landside Areas.	Annually by start of fire season (31 October).
BFMP7	Inspect firebreaks and fire access tracks and undertake any required maintenance.	JAH OM (supported by JAH EM) for Airside Areas. JAH IM (supported by JAH EM) for Landside Areas.	Annually by start of fire season (31 October).
Preparedness Actions			
Firebreaks and Tracks			
	Refer BFMP1, & 7		
Gates			
BFMP8	Ensure all gates are master keyed and all necessary personnel have keys.	JAH IM and JAH OM	At all times (ongoing)

Table 2. Bushfire Management Plan –Actions.			
Action		Responsibility	Timing
Water Supply			
BFMP9	Undertake quarterly fire hydrant pressure and flow tests on nominated hydrants.	JAH IM	Quarterly
JAH Staff Training			
	Refer BFMP3		
BFMP10	Issues and actions relevant to the BFMP are addressed as required via the JAH Safety Management System meetings.	JAH EM and JAH AOM	Monthly unless meetings are postponed or cancelled due to operational priorities.
BFMP11	All JAH ground staff potentially involved in bushfire response or support to be issued with appropriate uniforms.	JAH OM and JAH IM	Uniforms provided upon commencement of employment and replaced as required.
Equipment			
BFMP12	Equipment and vehicles that may potentially be utilised in bushfire response are maintained in good working order in line with JAH maintenance procedures.	JAH OM supported by JAH SASO.	Ongoing
Maps			
BFMP13	Review and update (if required) existing maps (Bushfire Response Plan, Fire Hydrants and priority areas). Provide updated maps to DFES.	JAH EM supported by JAH OM & JAH IM.	Annually by start of fire season (31 October).
Stakeholder Communication			
BFMP14	Undertake/facilitate familiarisation tours at DFES request.	DFES response stations	Annually (if required at DFES request).
BFMP15	Liaise with DFES to provide relevant updated information relating to any significance changes that have occurred in the previous 12 months.	JAH EM and DFES	Prior to undertaking or during annual familiarisation tours if major changes have occurred at the airport since the previous annual tour.
BFMP16	Raise any significant updates to the BFMP at the AEP Annual meeting for major stakeholders	JAH EM supported by JAH OM.	Annually (if significant updates to BFMP have occurred).
Response Actions *Note – only JAH actions are listed below. Whilst guidelines and recommendations are provided within this BFMP, JAH is not responsible for the DFES response actions			
BFMP17	Support DFES response to any bushfire at Jandakot Airport.	All JAH Staff	When a bushfire occurs.
BFMP18	Facilitate fauna rescue of animals injured by the fire.	JAH EM	Immediately after area is deemed "Safe".
Recovery Strategies			
Debriefing			
BFMP19	Hold a meeting with all parties involved in the fire fighting effort consistent with debriefing requirements detailed within the	JAH OM (AEC Chair)/JAH EM & Incident Controller	ASAP after fire or as detailed within the AEP

Table 2. Bushfire Management Plan –Actions.			
Action		Responsibility	Timing
	AEP.		
BFMP20	Complete any recommended changes to the preparedness and response strategies as a result of the above.	JAH OM (AEC Chair)/JAH EM	Timing to be determined at the debriefing.
Investigation			
BFMP21	Conduct post fire investigations in consultation with DFES.	JAH EM/JAH OM	ASAP after fire
Recording			
BFMP22	Prepare and store electronic records of the fire. Records to contain details outlined in Section 5.3.	JAH EM	Within 4 weeks of any fire occurring.
BFMP23	Create map using post-fire aerial photography and take ground-based photos of the area.	JAH EM	Ground-based photos to be taken within 7 days of the area being declared safe. Mapping to be completed within 4 weeks of Nearmap or other appropriate post-fire aerial photos being made available.
Safety			
BFMP24	Undertake an inspection of the areas impacted by fire close areas deemed 'unsafe' pending further assessment and/or remediation.	JAH OM, JAH IM, or JAH-EM – depending on areas impacted.	ASAP after DFES declare Stand Down. Exact timing dependent on the areas impacts and associated risks.
Bushland Rehabilitation and Revegetation			
BFMP25	Assess the need for fauna assistance (e.g. temporary supplementary feeding) and determine ongoing monitoring requirements.	JAH EM	As soon as possible after a fire. Exact timing of fauna rehabilitation tasks will be dependent on location of fire and species impacted.
BFMP26	Assess the fire-impacted area for rehabilitation and revegetation requirements.	JAH EM	As soon as possible after a fire.
BFMP27	If required, develop and implement a post-fire rehabilitation and revegetation plan.	JAH EM	Following the completion of the post-fire rehabilitation and revegetation assessment (BFMP26).
Reporting and Review			
Reporting			
BFMP28	Report against relevant actions of the BFMP within the Jandakot Airport Annual Environment Report (AER) and provide copies to DITRDC and DAWE.	JAH EM	By 28 October Annually.
BFMP29	Report against actions of the WMP within an Annual Compliance Report (ref Condition 16 of EPBC 2009/4796) and publish on the	JAH EM	28 October Annually.

Table 2. Bushfire Management Plan –Actions.			
Action		Responsibility	Timing
	JAH website.		
Review			
BFMP30	Review and update BFMP.	JAH EM	2027
BFMP31	Review and amend BFMP (including details of areas to be cleared) if proposed clearing for firebreaks/tracks exceeds the 167 hectare clearing limit under EPBC 2009/4796 within precincts 1B,3, 4 and 5, or if any clearing of native vegetation is proposed within other precincts, and submit to DAWE for approval.	JAH EM	Prior to clearing for firebreaks and fire tracks.

9 Glossary

AEC	Aerodrome Emergency Committee
AEP	Aerodrome Emergency Plan.
AER	Annual Environment Report
AM	Aerodrome Manual
ASO	Airport Services Officer
BFMP	Bush Fire Management Plan
BOM	Bureau of Meteorology
CEMP	Construction Environmental Management Plan
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)
DFES	Department of Fire and Emergency Services (Formerly FESA)
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)
DMP	Dieback Management Plan
DOEE	Department of the Environment (now DAWE)
DPAW	Department of Parks and Wildlife (formerly DEC). On 1 July 2017 DPAW was merged with three other Departments to become DBCA.
DRO	Duty Reporting Officer
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DAWE)
EGCP	Emergency Gate Control Post
EMP	Environmental Management Plan
EPBC	Environmental Protection and Biodiversity Conservation Act 1999
JAH	Jandakot Airport Holdings
JAH EM	Jandakot Airport Holdings Environment Manager
JAH IM	Jandakot Airport Holdings Infrastructure Manager
JAH OC	Jandakot Airport Holdings Operations Coordinator
JAH OM	Jandakot Airport Holdings Operations Manager
OEMP	Operational Environmental Management Plan
SMS	Safety Management System
UWPCA	Underground Water Protection Control Area.
WAPOL	Western Australian Police.

10 References

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FIGURE 1 MASTER PLAN 2020

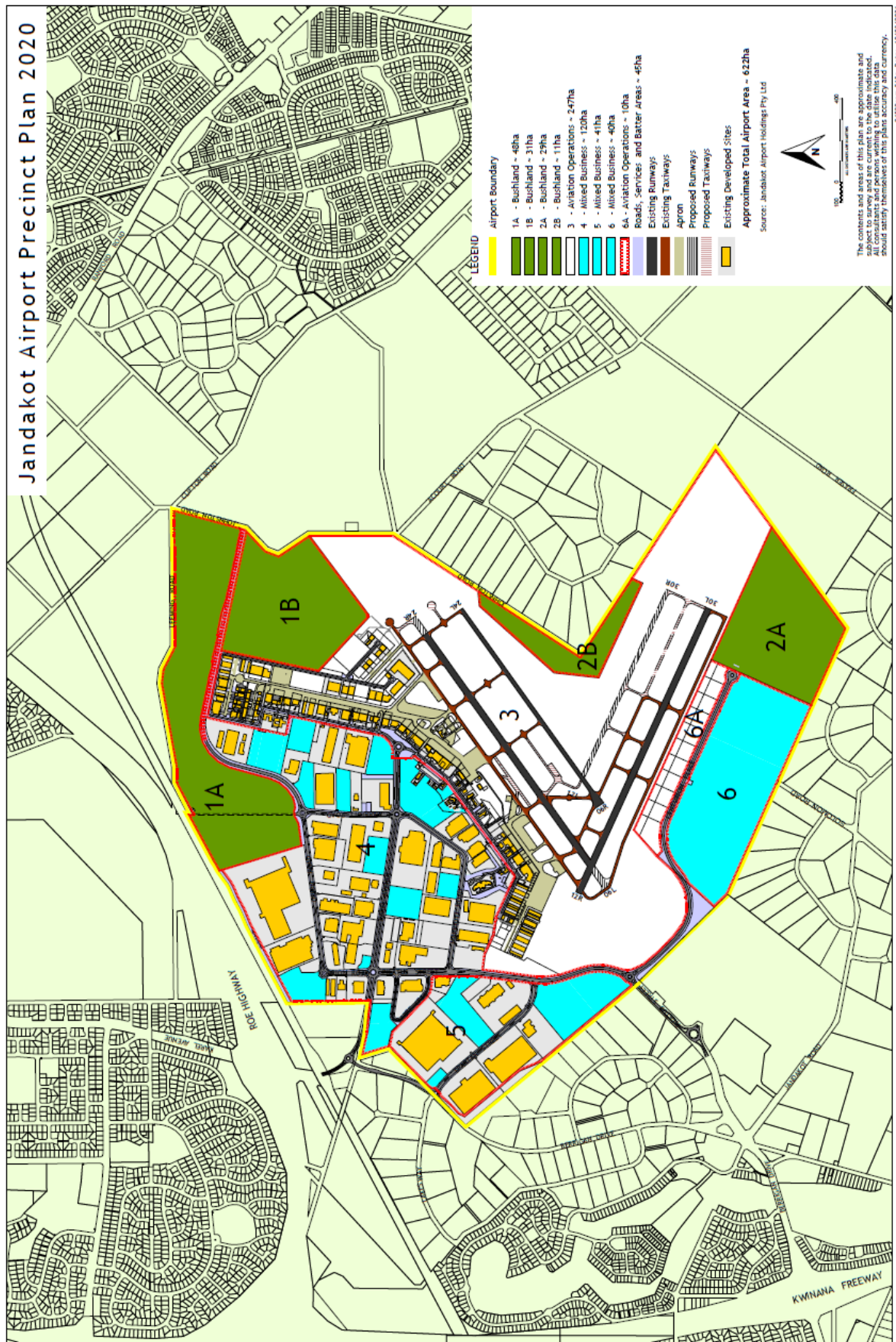


FIGURE 2 JANDAKOT AIRPORT BUSHFIRE RESPONSE PLAN

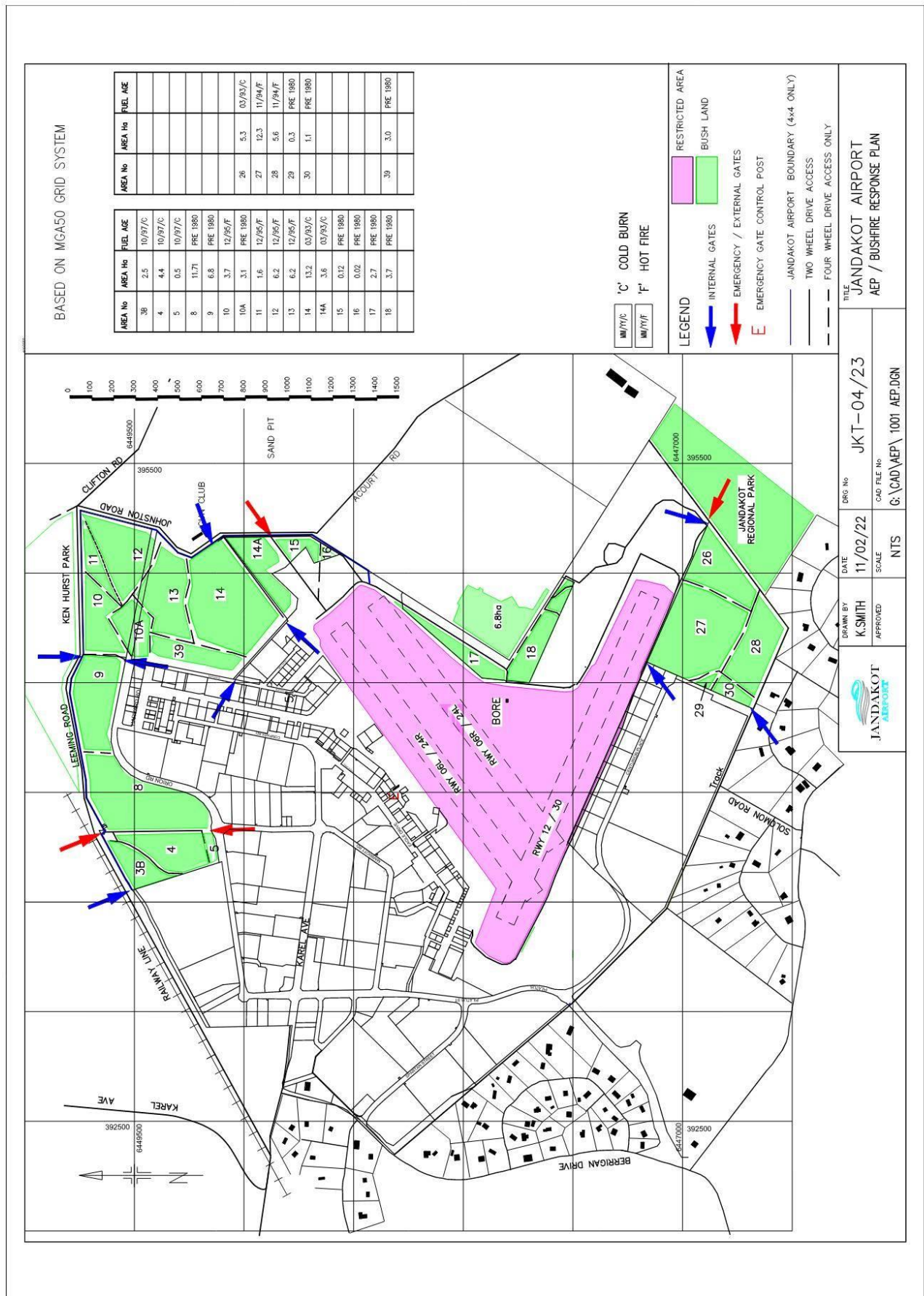


FIGURE 3 VEGETATION COMMUNITIES MAPPING

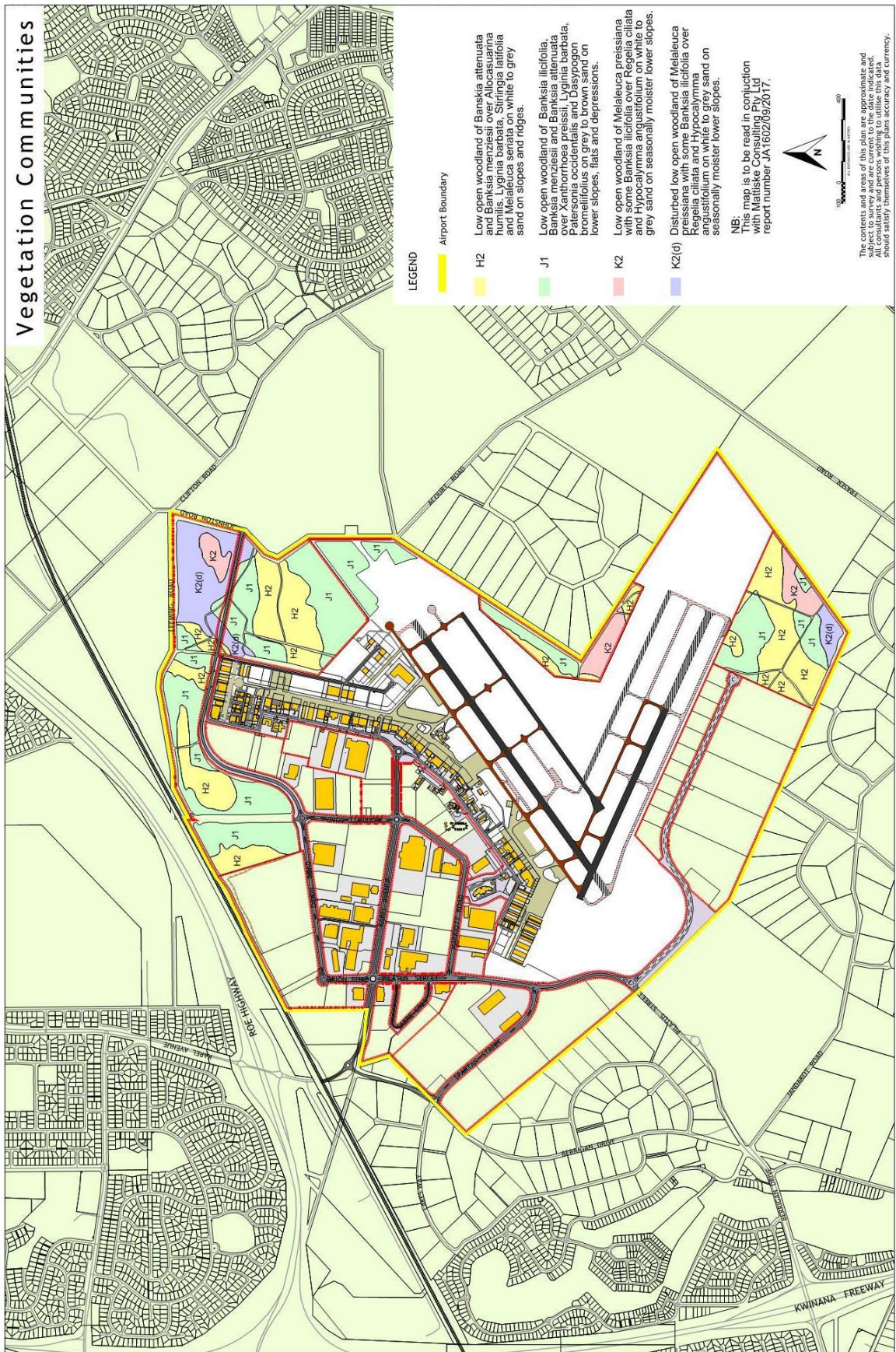


FIGURE 4 JANDAKOT AIRPORT WETLANDS

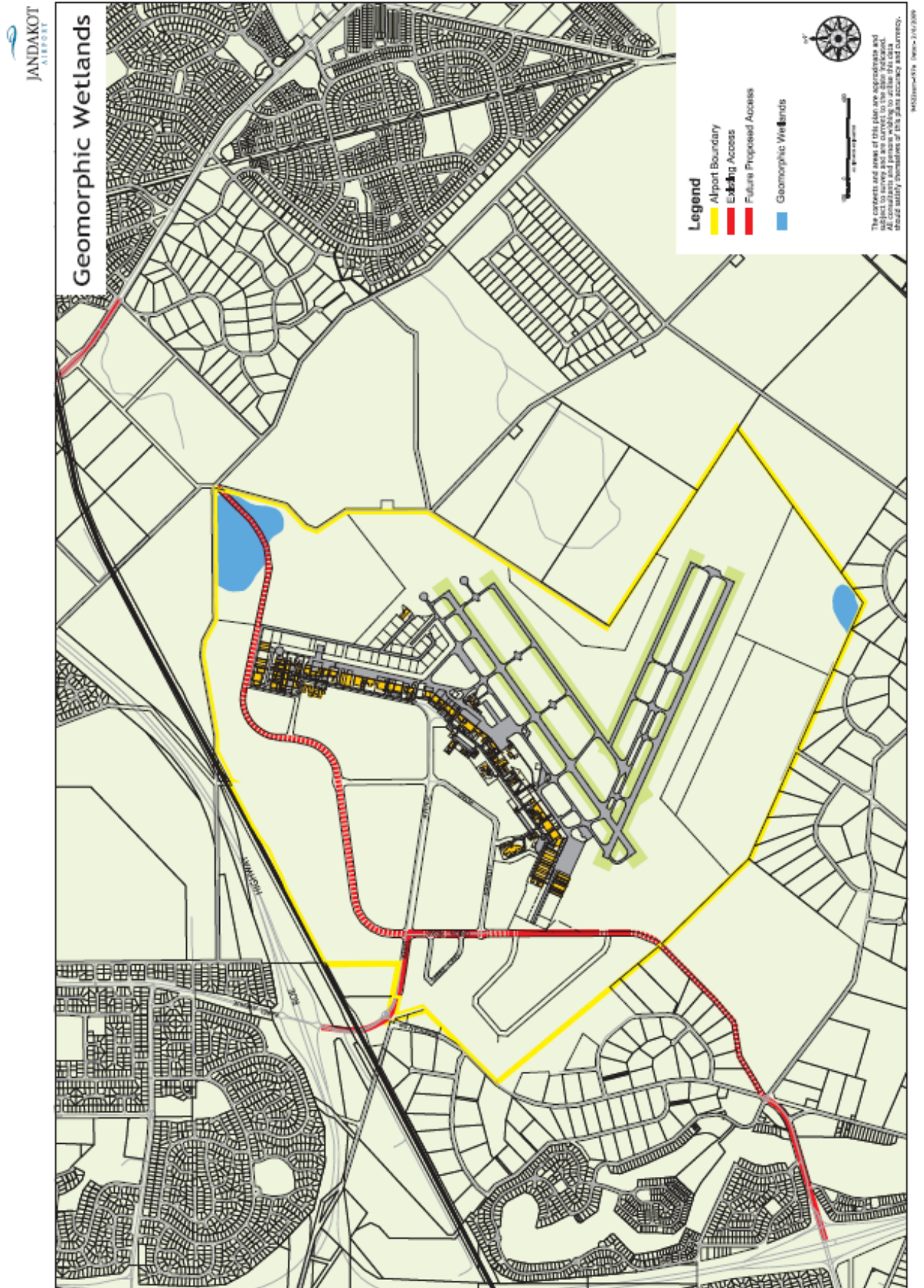


FIGURE 5 DIEBACK AFFECTED AREAS

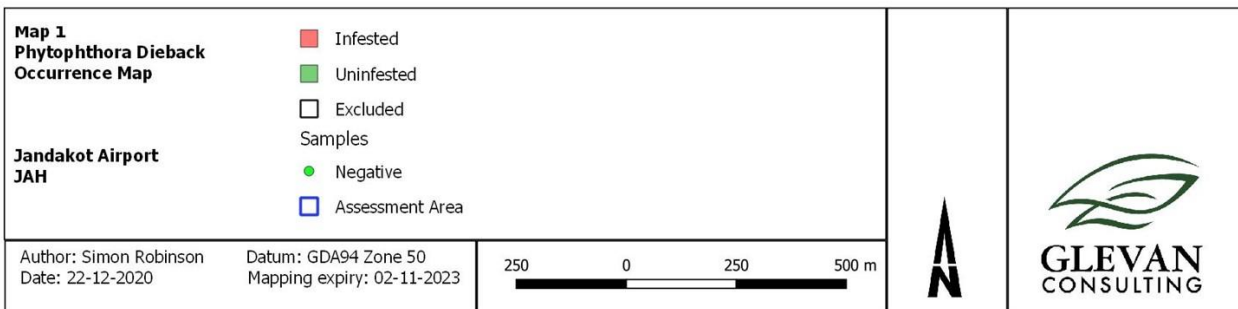


FIGURE 6 JANDAKOT UWPCA

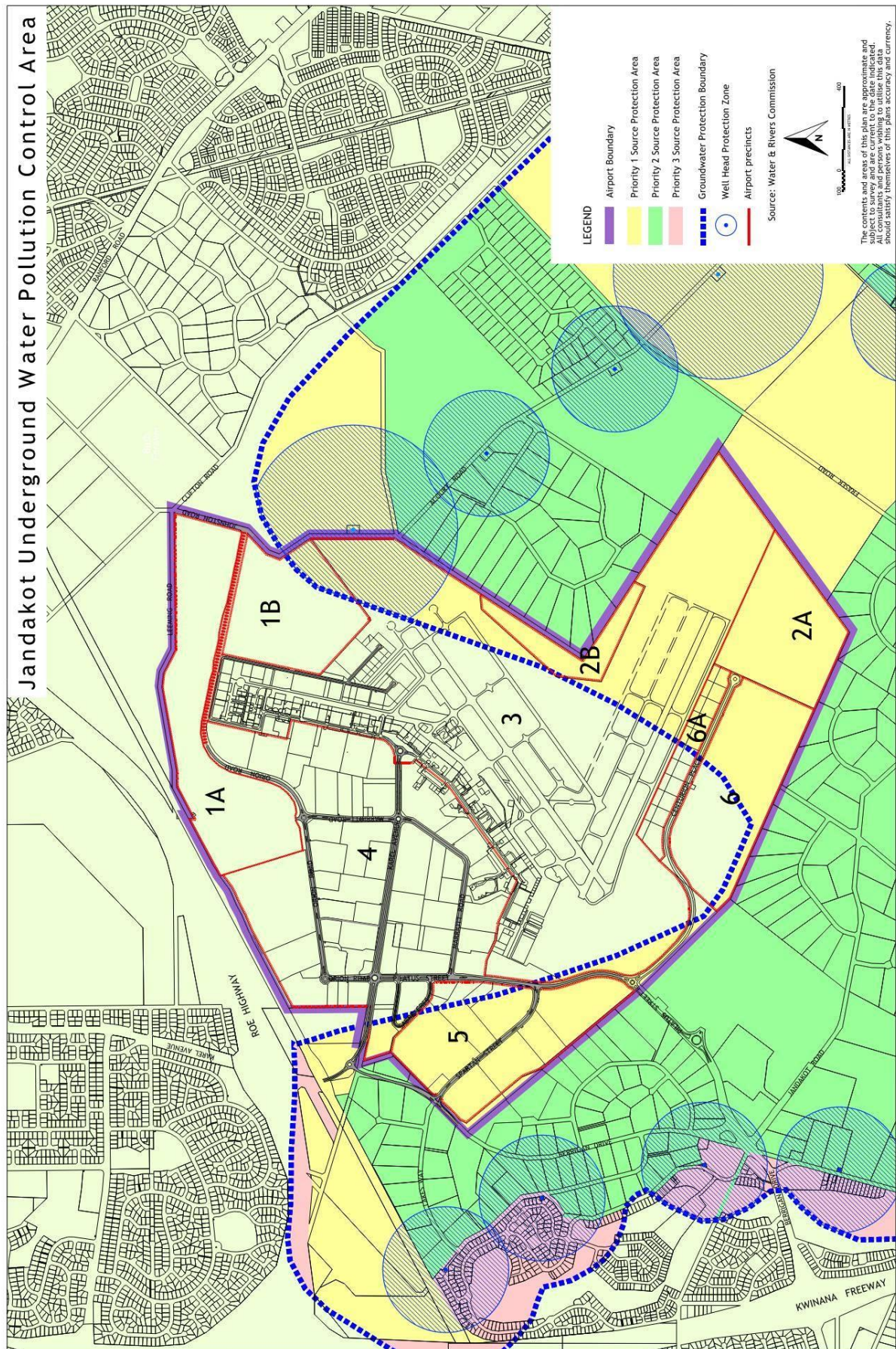


FIGURE 7A FIREBREAKS AND ACCESS TRACKS

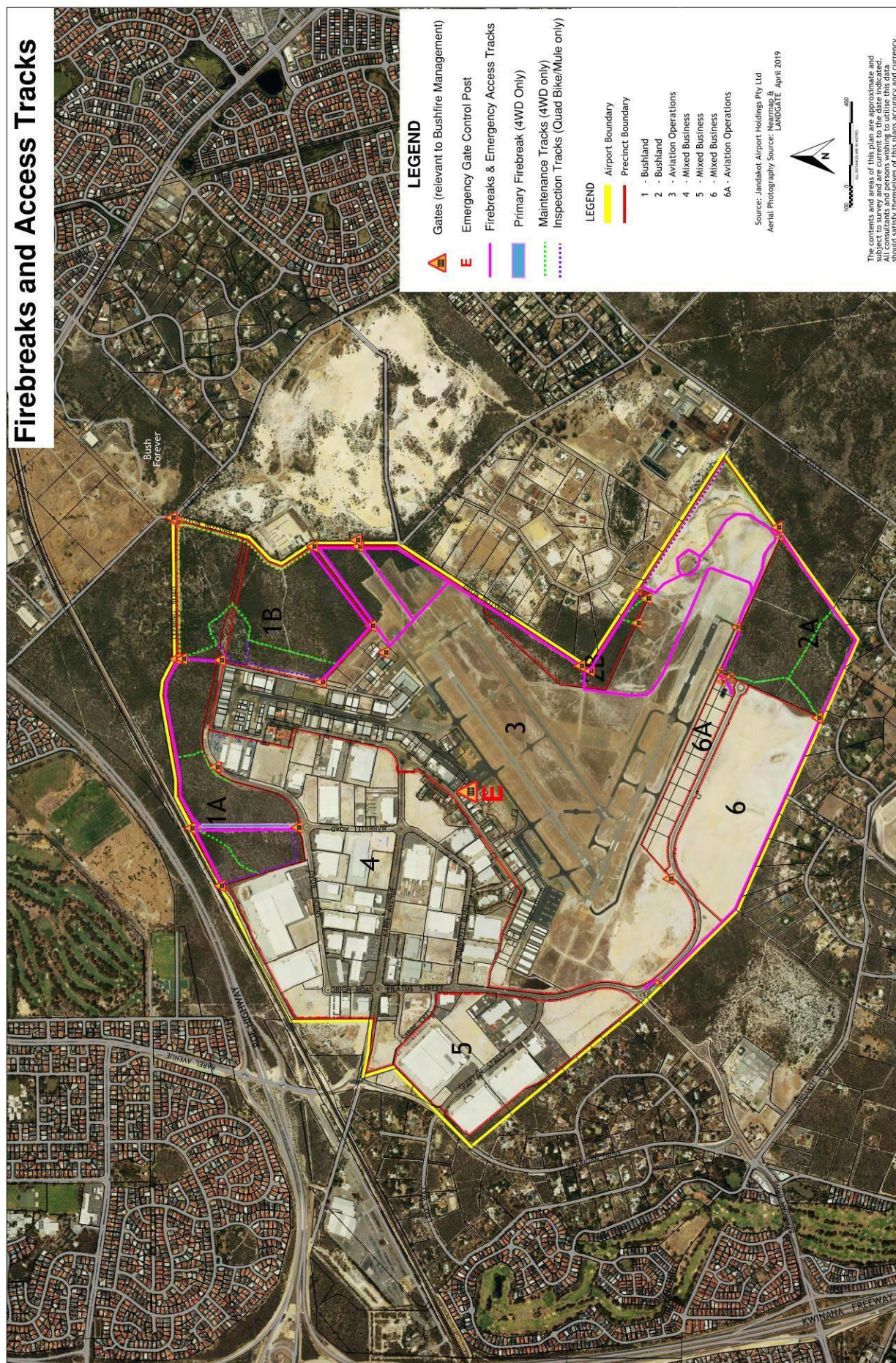
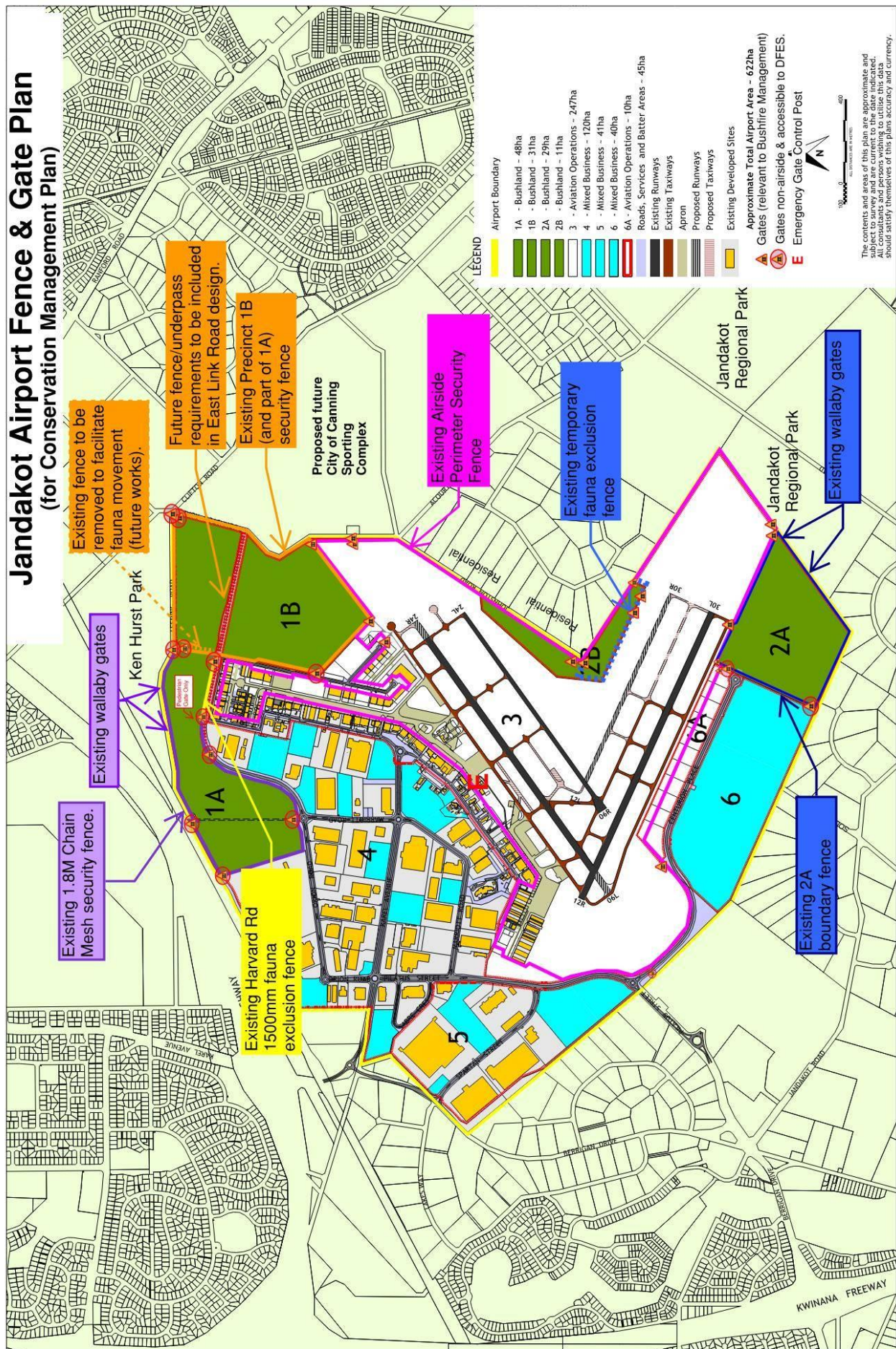
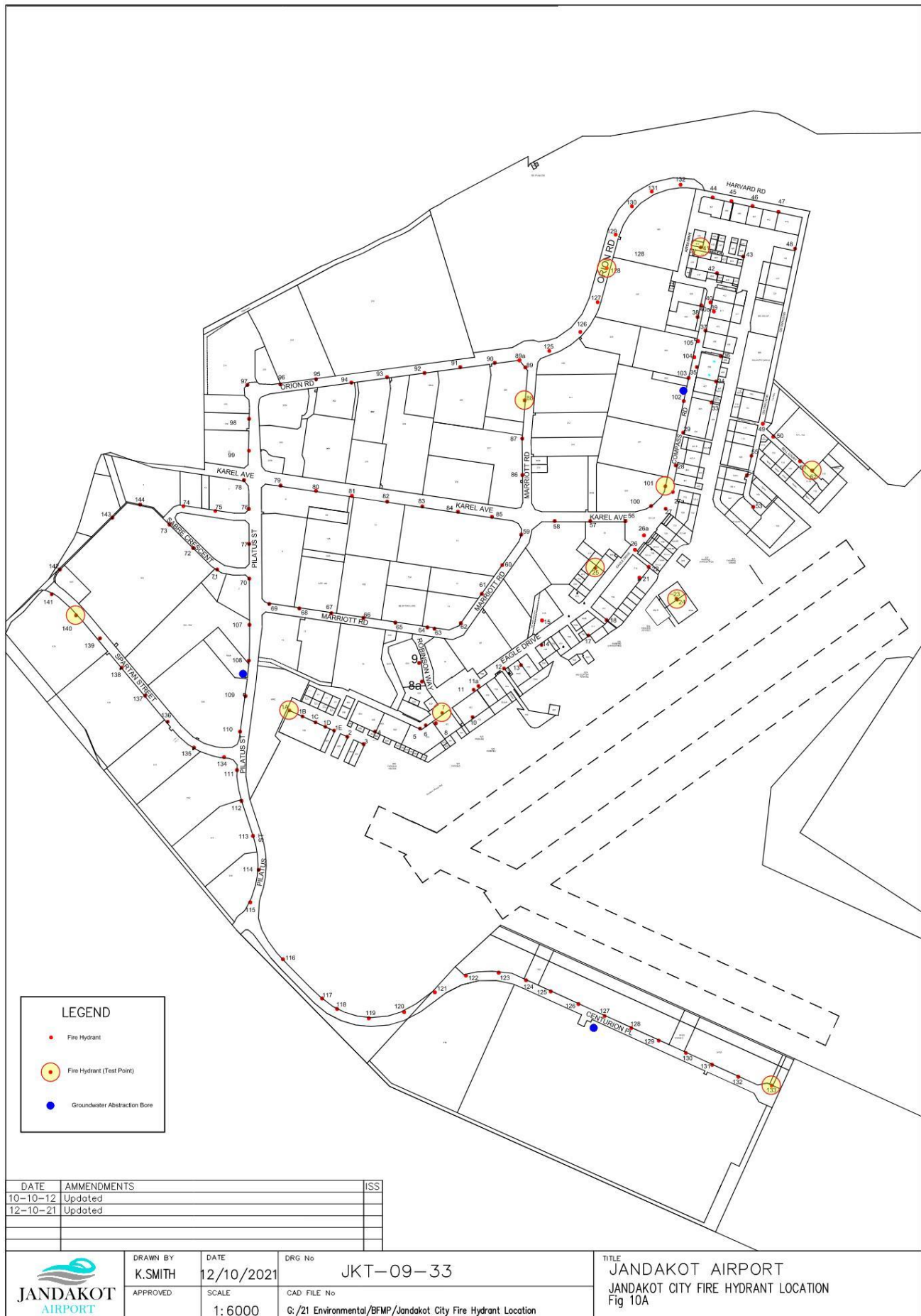


FIGURE 7B JANDAKOT AIRPORT FENCE & GATE PLAN



V3 20/12/18

FIGURE 8 HYDRANT LOCATIONS



ATTACHMENT A. Future Emergency Access Tracks and Firebreaks.

Background

Condition 1c of EPBC 2009/4796 conditions of approval allow for the establishment or management of firebreaks and emergency access tracks within Precincts 1A, 1B, 2A and 2B providing:

- The Conservation Management Plan required under condition 6 provides justification and detail of the locations and areas impacted by the firebreaks/emergency access tracks; and
- The Conservation Management Plan has been approved by the Minister.

Vegetation cleared for the maintenance or establishment of new firebreaks and emergency access tracks is excluded from the 167 hectare limit required under condition 1.

1. New Emergency Access Track/Firebreak, Precinct 2A.

Version 7 of the BFMP, approved by DAWE 19/7/2019, included detailed planning and justification for a new dual purpose track (i.e., Emergency Access track and Firebreak) along the inner boundary of Precinct 2A, thus bypassing the restricted taxiway K strip.

The works were completed and reported accordingly within the 2019/20 AER and EPBC Annual Compliance Report. The new track is now included within Figures 7A and 7B of the BFMP.

2. Maintenance to Remove Regrowth Vegetation from Gas Pipeline Easement.

A high-pressure gas pipeline traverses through the northern section of Precinct 1A, and an easement exists over the area. APA are the company responsible for management of the pipeline, along with associated responsibilities within the easement.

No Rare flora are known to exist in this area.

To comply with the *Petroleum Pipelines Act 1969* (i.e. maintaining line of site for warning markers) and AS2885, APA may at times be required to undertake a level of clearing within the easement (shown in blue in Figure A below). This clearing can only occur following consultation with JAH, and is to be restricted to pruning and/or the removal of individual trees necessary to maintain line of sight for warning markers.

All removed vegetation must be removed from site – it cannot be left in-situ to add to the existing fuel load.

Figure A: Location requiring line of site clearing for warning markers in Precinct 1A.



3. Maintenance to Remove Regrowth Vegetation from Existing Firebreaks, Precinct 1A

Figures B and C below shows existing firebreaks where regrowth vegetation is required to be cleared (or will be required at some point in the future) in order to maintain the integrity of the firebreaks and security fences.

These areas are not mapped bushland/vegetation. They have historically been cleared on a regular basis and have not been included in the vegetation mapping of Jandakot Airport's bushland (see Figure 3 from Mattiske 2017).

No Rare flora are known to exist in areas proposed for maintenance. Rare flora and other environmental values in areas adjacent to firebreaks will be protected via the implementation of the Conservation Management Plan and its appendices.

Figure B (showing Primary Firebreak (pink) and adjacent emergency access track.

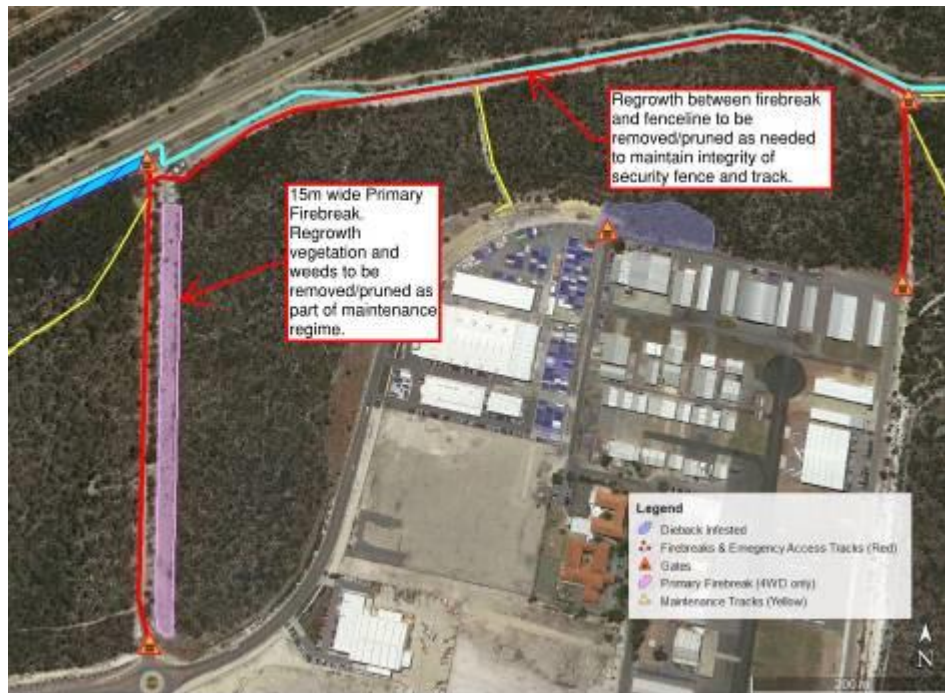


Figure C.



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