URBIS

MAJOR DEVELOPMENT PLAN FOR WESTERN POWER DEPOT

JANDAKOT AIRPORT

PREPARED FOR

JANDAKOT AIRPORT HOLDINGS

SEPTEMBER 2017

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GLOSSARY OF TERMS

Term	Abbreviation
Airports Act 1996	The Act
Airports (Protection of Airspace) Regulations 1996	The Regulations
Jandakot Airport Holdings Pty Ltd	JAH
Major Development Plan	MDP
Jandakot Airport Master Plan 2014	Master Plan
Jandakot Environment Strategy 2014	Environmental Strategy
Environmental Protection and Biodiversity Act 1999	EPBC Act
Contaminated Sites Act 2003	CS Act
Jandakot Underground Water Pollution Control Area	JUWPCA
Civil Aviation Safety Authority	CASA

EXECUTIVE SUMMARY

Jandakot Airport Holdings Pty Ltd (JAH) plans to develop a depot facility at Jandakot Airport on behalf of Western Power. This Major Development Plan (MDP) has been prepared in accordance with the requirements of the Airports Act 1996 (the Act). For the purposes of the Act, the Depot comprises of the construction of a new building that is not wholly or principally for use as a passenger terminal; and the cost of construction exceeds $20 million. Therefore, the proposed development is classified as a '*major airport development'*. Accordingly, the development cannot be carried out except in accordance with this MDP.

JAH plans to build the Western Power Depot (the Depot) on a 10.0094 hectare site known as 'site 516' located in the southern portion of the airport area, within the mixed business precinct. The site has access via a new two lane local road which provides a connection south to Berrigan Drive and Jandakot Road or north to Karel Avenue and Roe Highway.

The proposed Depot is located within Precinct 6 of the Jandakot Airport Master Plan 2014 (the Master Plan). Western Power's vision will be facilitated through the delivery of an exemplar depot facility to meet the operation requirements and provide a high standard workplace for staff. The improvements required to meet the needs of Western Power include:

- Administration offices
- Warehouse and workshop space
- Vehicle maintenance facilities
- Storage
- Covered and secured parking for light and heavy fleet vehicles
- General parking for staff and visitors

The Depot will consist of four (4) buildings with a total covered floor area of 28,580sq.m and an uncovered floor area of 12,094sq.m. There are a number of other covered and uncovered areas on site, comprising of storage for fleet vehicles, refuelling, wash-down, environmental waste, storage and parking. Following the completion of construction and once fully operational, the Depot is estimated to employ up to 750 staff.

The location of the proposed depot is in the southern boundary of Jandakot Airport within the mixed business precinct, well clear of the airside services that are the predominate use of the Airport.

The subject land has already been cleared and is development ready with all services available. The site has significant separation from sensitive land uses, thus ensuring the operation can occur without impacting any existing or future uses in the locality. There will be no significant environmental impacts as a result of the proposed development.

Overall, the proposal is an example of modern depot development, and takes advantage of the exceptional location and convenient access to the regional road network. The development is shown to be consistent with the Master Plan and meets all the statutory requirements of the Act.

Western Power have been working closely with JAH to ensure the development is in accordance with their requirements, the Airports Act 1996 (the Act) and the Master Plan.

This MDP has been prepared in consultation with key stakeholders and the public through targeted engagement, as well as the public comment requirements specified under the Act.

1. INTRODUCTION

This Major Development Plan (MDP) has been prepared by Urbis Pty Ltd on behalf of Jandakot Airport Holdings Pty Ltd (JAH) in support of the development of the Western Power Depot (the Depot) within the Jandakot Airport Mixed Business Precinct. Jandakot Airport is situated 16 kilometres south of the City of Perth and provides aviation facilities for tourism, pilot training and other general aviation services.

The proposed new Depot represents the continuation of the development of non-aviation facilities within Jandakot Airport, complementing existing development. The building will be developed in a single stage and will meet the existing and foreseeable requirements for Western Power as a major hub in the south-west for the next 20 years or more.

This MDP has been prepared in accordance with the Airports Act 1996 (the Act), Jandakot Airport Master Plan 2014 (Master Plan) and is consistent with the Jandakot Airport Leasing and Development Guidelines and the Landscape Design Guidelines, reflecting the general high standard of development expected throughout the area.

The new Depot will enable Western Power to consolidate some of its existing depot facilities and operations in the metropolitan region, providing a centralised distribution hub to increase operational and financial efficiencies for the business in a new state-of-the-art facility. The location at Jandakot Airport offers significant locational advantages associated with land availability and efficient connections into the regional road network.

There is a close affinity with the values and vision set out in the Master Plan and the location provides the opportunity to be part of an extremely high quality mixed business precinct with a diverse range of complementary users, including significant distribution and depot facilities. The value that has been invested into Jandakot Airport by JAH is clearly evident, and it provides a solid footing for a successful long term outcome.

The MDP has been prepared in accordance with Division 4, Section 91 of the of the Act.

The Preliminary Draft MDP will be placed on public display for a period of 20 business days and the submissions received will be forwarded to the then Minister for Infrastructure and Transport for determination.

2. LEGISLATIVE FRAMEWORK

This section sets out the statutory framework that governs the development of the land within Jandakot Airport and the mandatory requirements to be addressed by this MDP.

2.1. AIRPORTS ACT 1996

The Act and associated Regulations are Commonwealth legislation that is responsible for the regulation of ownership, management and conduct of major Australian airports. Part 5 of the Act sets out the requirements for land use, planning and building controls.

In accordance with the Act, all 'major airport development' requires a 'Major Development Plan'. The MDP is submitted to the Minister of the Department for Infrastructure and Transport (the Minister) for assessment. The Minister has the power to approve or to refuse to approve the plan. Section 89 of the Act sets out all those activities defined as major airport development. The proposed development subject of the MDP is determined to be 'major airport development' by pursuant to Section 89(1)(e):

> *Constructing a new building, where:*
>
> *(i) The building is not wholly or principally for use as a passenger terminal; and*
>
> *(ii) The cost of construction exceeds $20 million or such higher amount as is prescribed;"*

For the purposes of the Act, the new depot facility will include, administration offices, warehouse and workshop space, vehicle maintenance facilities, storage, covered and secured parking for light and heavy fleet vehicles and general parking for staff and visitors.

Based on the estimated construction cost in order of $36 million (thereby exceeding the $20 million threshold under the Act) the proposed development is considered a 'major airport development' thereby triggering the need for a Major Development Plan (MDP) to be prepared and submitted to the Minister for approval.

Complementary legislation includes the Airports (Environment Protection) Regulations 1997, the objectives of which are to establish a system of regulation and accountability for activities at airports that's generate or have the potential to generate pollution and/or excessive noise and to promote improved environmental management practices for activities carried out at airport sites.

In accordance with the Act, Jandakot Airport is required to produce a final Master Plan which now includes the Environment Strategy. This Environment Strategy describes how JAH will meet the environmental management requirements of the Act. It has been developed with consideration of current airport operations as well as proposed future development.

2.2. JANDAKOT AIRPORT MASTER PLAN 2014

Under Section 69 of the Act, each airport is required to produce a master plan. The Jandakot Airport Master Plan 2014 (the Master Plan) includes the provision of the fourth runway and associated taxiways, aviation land use areas, commercial land use areas and general access arrangements.

Under Section 94(5) of the Act, a major development plan cannot be approved unless it is consistent with the relevant final master plan (where one exists). The matters to be addressed by the MDP are set out under Section 91 of the Act and are summarised the checklist provided in **Table 1**.

Table 1 – Major Development Plan Requirements

ACT REF	MAJOR DEVELOPMENT PLAN REQUIREMENTS	SECTION IN MDP
91(1)(a)	• The proponents' objectives for the development	4
91(1)(b)	• The extent to which the development will meet the future needs of civil aviation uses of the Airport and other users of the Airport	4.1
91(1)(c)	• A detailed outline of the proposed development	5
91(1)(ca)	• Whether or not the development is consistent with the Airport's lease for the airport	3.2

91(1)(d)	• Whether or not the development is consistent with the final master plan for Jandakot Airport	8
91(1)(e)	• If the development could affect noise exposure levels at the airport and the effect the proposed development would have on noise exposure levels	10.2
91(1)(ea)	• If the development could affect flight paths at the airport— the effect that the development would be likely to have on those flight paths	10.4
91(1)(f)	• The proponents' plans, developed following consultation with airport users, for managing aircraft noise intrusion in areas forecast to be subject to exposure above the significant ANEF levels (having regard for AS 2021-2000)	N/A – the development sits outside the identified ANEF contours
91(1)(g)	• An outline of the approvals that the proponent has sought, is seeking or proposes to seek under Division 5 or Part 12 in respect of elements of the development	12.1
91(1)(ga)	• The likely affect the proposed development would have on:	-
	– Traffic flows at the airport and surrounding the airport	7.3
	– Employment levels at the Airport, and	4.2.1
	– The local and regional economy and community, including an analysis of how the proposed development fits within the local planning schemes for commercial and retail development in the adjacent area	9
91(1)(h)	• An assessment of environmental impacts that might reasonably be expected to be associated with the development	10.9
91(1)(j)	• The proponents' plans for ameliorating or preventing identified environmental impacts	6.1
91(1)(k)	• If the plan relates to a sensitive development—the exceptional circumstances that the proponent claims will justify the development of the sensitive development at the airport	N/A – the proposal is not for a sensitive development.
91(1)(l)	• Such other matters (if any) as are specified in the regulations	N/A
91(4)	• The proponents' plan must demonstrate the extent of the consistency with planning schemes in force under a law of the State where the Airport is location; and identity and justify any inconsistencies	9

As demonstrated in Table 1, this MDP addresses all the required matters above in accordance with Section 91 of the Act.

2.3. JANDAKOT ENVIRONMENT STRATEGY

In accordance with the Act, Jandakot Airport is required to produce a final Master Plan which is to include the Environment Strategy. The Environment Strategy outlines Jandakot Airport's environment management objectives for the five-year period from 2014 to 2019.

The Environment Strategy describes how JAH will meet the environmental management requirements of the Act. It has been developed with consideration of current airport operations as well as proposed future development.

The purposes of the Environment Strategy, as outlined in Section 71 of the Act are to identify:

- The airport lessee company's objectives for the environmental management of the airport; and
- The areas (if any) within the airport site which the airport lessee company, in consultation with State and Federal conservation bodies, identifies as environmentally significant; and
- The sources of environmental impact associated with airport operations; and
- The studies, reviews and monitoring to be carried out by the airport lessee company in connection with the environmental impact associated with airport operations; and
- The time frames for completion of those studies and reviews and for reporting on that monitoring; and
- The specific measures to be carried out by the airport lessee company for the purposes of preventing, controlling or reducing the environmental impact associated with airport operations; and
- The time frames for completion of those specific measures; and
- Details of the consultations undertaken in preparing the strategy (including the outcome of the consultations); and
- Any other matters that are prescribed in the regulations.

3. SITE CHARACTERISTICS

3.1. SITE DETAILS

Jandakot Airport is situated approximately 16km south of the City of Perth, 13 km east of the Port of Fremantle (measured in a straight line), and occupies an area of 622 hectares (refer **Figure 1**).

The proposed site that is subject to this MDP is 10.0094 hectares and is in the southern portion of the airport, within the Non-Aviation Development Area.

The site has access via a new two lane local road which provides a connection south to Berrigan Drive and Jandakot Road or north to Karel Avenue and Roe Highway.

Figure 1 – Location Plan

Source: Urbis 2017

The subject site is referred to as ‘site 516’ for the purpose of the agreement between Western Power and JAH.

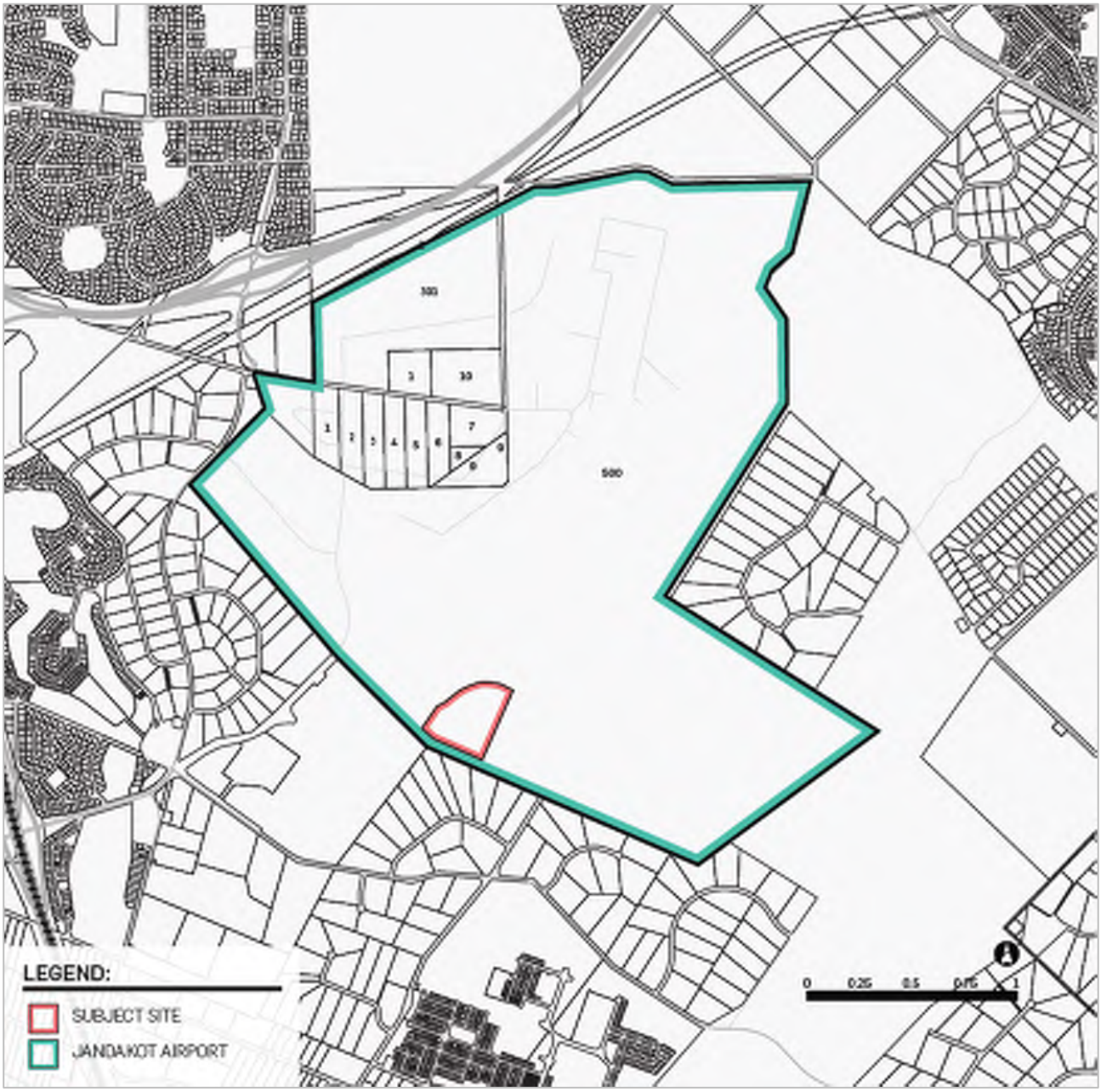
The site is currently vacant, with clearing being finalised in 2015 for development. The site has been graded and stabilised to create a level lot, fully serviced and ready for commercial development. No previous development approvals have been granted over the site.

The legal description of the site is detailed in **Table 2** and illustrated in **Figure 2**.

Table 2 –Site Particulars

LOT	PLAN/DIAGRAM	VOL/FOLIO	REGISTERED PROPRIETOR
Lot 500	P7585	2228/474 2278/469	Commonwealth of Australia

Figure 2 – Cadastral Plan



Date Source: MNG, 2017

3.2. JANDAKOT AIRPORT LEASE

Jandakot Airport is located on Commonwealth Government land. On 1 July 1998, the Commonwealth Government sold a 50-year lease over Jandakot Airport, with an option of a 49-year lease extension to JAH.

Section 91 of the Act requires that a major development is consistent with the airport lease. The proposal for the Western Power Depot is consistent with the Jandakot Airport lease which permits the land comprising Jandakot Airport to be used for lawful purposes that are not inconsistent with its use as an airport. The airport lease also requires that any development is in accordance with an approved master plan. As detailed in Section 8, the Depot is consistent with the Master Plan in terms of the nominated land uses for the precinct.

An essential term of the lease is that the lessee must comply with all legislation relating to the Airport site, including the Act. Whilst the Act requires that JAH operate the airport site as an airport, it also provides for the efficient economic development of the airport site and for its development for additional uses. The non-aviation development of the Jandakot Airport estate serves a key function in ensuring the economic viability of Jandakot Airport and compliments its primary operation as an airport.

3.3. EXISTING DEVELOPMENT AND SURROUNDING USE

The land surrounding the subject site forms part of the Jandakot Mixed Business Precinct that has been developed over the past decade, through significant capital works undertaken in accordance with the vision set out in the Master Plan.

The subject site is located in the southern boundary of the Jandakot Airport (refer **Figure 3**). The closest sensitive land use to the subject site is rural-residential in the suburb of Jandakot to the south and west of the site with the nearest dwelling being approximately 200 metres from the edge of the site.

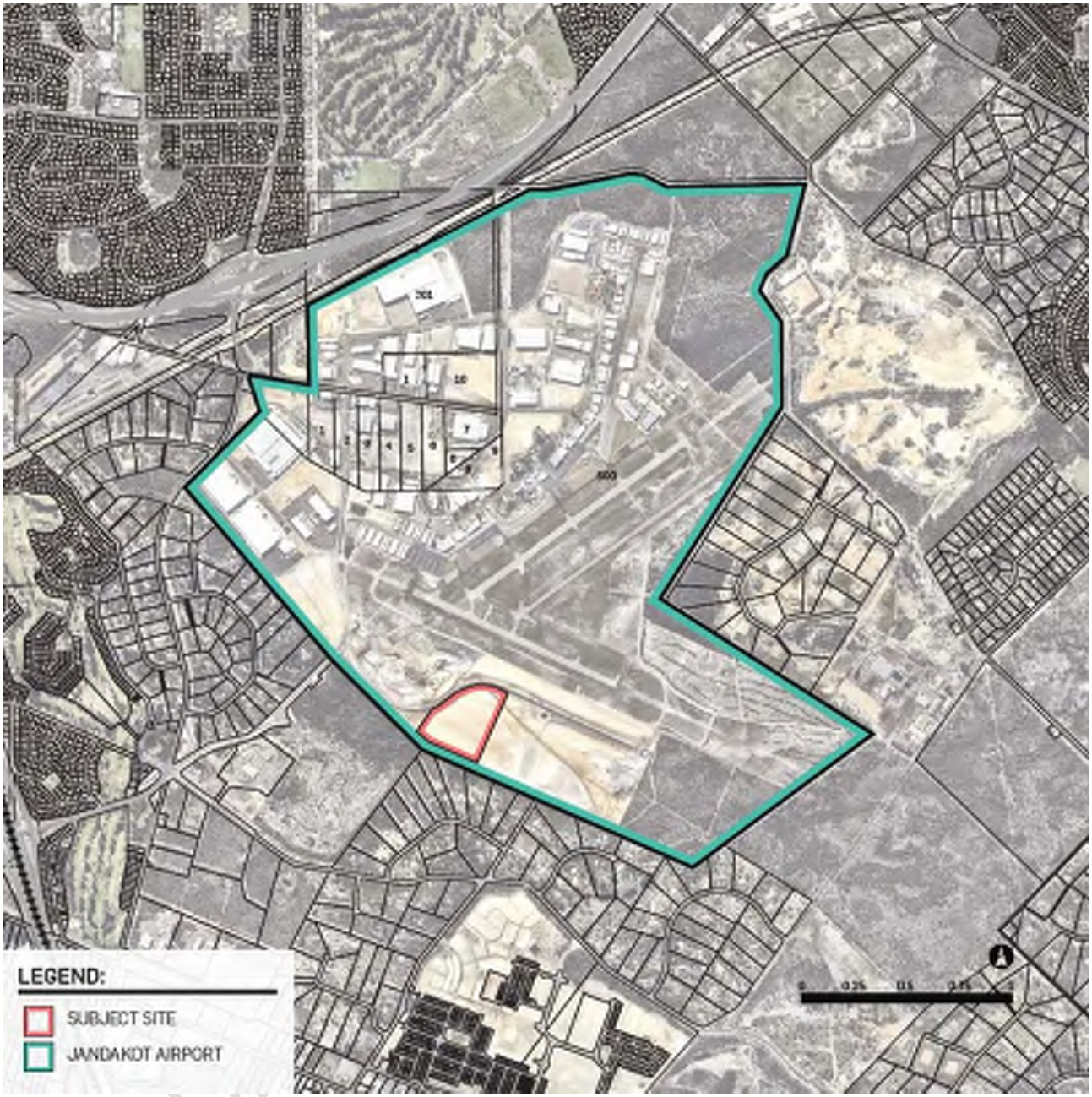
The rural-residential dwellings have a large setback creating a vegetation strip on excess of 150m between the boundary of the Airport and the nearest residential dwelling.

A summary of the surrounding land uses in provided in **Table 3**.

Table 3 – Surrounding Land Uses

SURROUNDING ENVIRONMENT	ADJACENT DEVELOPMENT / LAND USE	BEYOND
North	Jandakot Airport runway, Jandakot Airport, Jandakot bulk goods area	Canning Vale Industrial, residential suburbs
South	Undeveloped rural, rural residential properties	Calleya Residential Estate, Jandakot bulky goods area
East	Cleared land, undeveloped rural land	Undeveloped rural, rural residential properties
West	Cleared, rural residential properties	Residential suburbs

Figure 3 – Aerial Photograph



Source: Nearmaps 2017

4. DEVELOPMENT OBJECTIVES

JAH is seeking to establish a depot facility to lease to Western Power. Western Power currently has multiple depots across metropolitan Perth and is seeking to consolidate activities in a northern metropolitan and southern metropolitan depot.

Western Power's Vision for this facility is:

- To create a depot facility which promotes operational efficiency whilst maintaining a safe working environment for Western Power staff.
- To align tangible infrastructure to Western Power's corporate objectives; creating a facility that not only showcases Western Power as an employer of choice, but that is responsible to their customers and the community.
- To align accommodation/buildings with current Western Power best-practice, and Government of Western Australia, Property Accommodation Standards.

Western Power's vision is being facilitated through the delivery of an exemplar depot facility to meet the operation requirements and provide a high standard workplace for staff. The improvements required to meet the needs of Western Power include:

- Administration offices
- Warehouse and workshop space
- Vehicle maintenance facilities
- Storage
- Covered and secured parking for light and heavy fleet vehicles
- General parking for staff and visitors

Western Power's vision and objectives for this development are well aligned with the continuing development of the mixed business precinct providing additional economic benefits from non-aviation land within the airport.

4.1. NEED AND JUSTIFICATION

Jandakot Airport commenced operation in 1963, and currently supports a wide range of air services, including flight training schools, the Royal Flying Doctor Service, Department for Fire and Emergency Services, WA Police and many other general aviation uses. In more recent times the land within the airport lease area has evolved into a more diverse precinct, with the development of a significant portion of the site for non-aviation purposes. Jandakot Airport represents a highly strategic location for transport-based uses that can operate without impacting on the core operations of the airside services.

The State Government's planning framework identifies Jandakot Airport as a 'Specialised Centre', intended to 'focus on regionally significant economic or institutional activities that generate many work and visitor trips, which therefore require a high level of transport accessibility'. Specifically, the Jandakot Specialised Centre is identified as having a primary function of 'Aviation and Logistic Services'. The proposed development of the Depot facility is strongly aligned with this objective.

As outlined in the Master Plan, the vision for Jandakot Airport is *'to successfully develop and manage Jandakot Airport as a strategically significant aviation hub with a supporting business campus'*. The following objectives guide the planning and development of the airport site:

- *Maintain Jandakot Airport as a leading General Aviation facility through investment in infrastructure necessary to satisfy the forecast operational requirements;*
- *Enhance the airport's contribution to WA employment and economic growth through appropriate aviation and non-aviation development;*
- *Encourage sustainable development of the airport land through consideration and integration of environmental, financial and social values and stakeholder interests;*

- *Ensure the long-term viability and sustainability of the airport and its stakeholders through effective planning, development and management; and*
- *Provide a safe, secure, reliable and efficient airport operating environment.*

The future development and growth of Jandakot Airport will build on the already significant economic value of the airport estate. Proposed major capital works outlined in the Master Plan include the construction of the fourth runway, expansion of the associated aviation development, including an additional 10 hectares of land with taxiway access for aviation development in Precinct 6A, and further development of the commercial estate.

Western Power is seeking to establish a new depot in Jandakot Airport to promote operational efficiency, depot modernisation to provide a facility with a high level of amenity for staff and align the facility with current industry best-practice. The proposed depot responds strongly to the vision and development objectives established under the Master Plan. Overall the proposal will positively contribute to the commercial precinct within Jandakot Airport, complement the existing range of uses, support a diverse working population and provide a high quality built form. The proposed development will not impact the future operating capacity of the airport.

4.2. CONTRIBUTION TO ECONOMIC DEVELOPMENT

4.2.1. Employment Generation

State Planning Policy 5.3 Jandakot Airport Vicinity (SPP 5.3) acknowledges the importance of Jandakot Airport as an element of transport infrastructure that services the region and the State as a whole.

Located centrally within Perth's southern suburbs, Jandakot Airport is an ideal employment destination with easy access to a broad range of suburbs, incorporating diversified demographics (and skillsets) due to its location on the Kwinana Freeway and Roe Highway.

The Draft South Metropolitan Peel Sub-Regional Planning Framework identifies Jandakot Airport as a 'Specialised Centre' which is anticipated to provide 1,729 jobs by 2031. The proposed Depot is estimated to accommodate 750 staff comprising administrative and field operations staff contributing a large portion of the projected employment generation for Jandakot Airport.

The employment benefits of the proposed depot originate from:

- Construction Jobs – the construction cost for the facility is estimated at approximately $36 million, an investment that will attract much needed construction jobs.
- Direct Jobs – in the order of 750 staff will eventually be employed at the site, including in the office components, once fully operational. Of the total number of staff, 60 per cent will be field based operational staff, with the other 40 per cent permanently based at the depot.
- Indirect Jobs – in addition to direct employment, a number of jobs can be expected to be created in the broader economy as suppliers to the new facility. Jobs created will be as diverse as cleaning, office supplies, goods-in deliveries, mechanical repairs and maintenance, etc.

The proposed development will elevate the status of Jandakot Airport as a location for establishing a business, providing a further catalyst for the development of new business opportunities in the locality.

In summary, the proposed Depot will:

- Enhance the airport's contribution to WA employment through the delivery of non-aviation development.
- Create several hundred jobs during construction, and in its ongoing operation.
- Provide additional employment in the South Metropolitan Peel sub-region and assist in achieving employment targets as set out in various State Government documents.
- Provide a range of full time and part time jobs accessible to the local workforce.

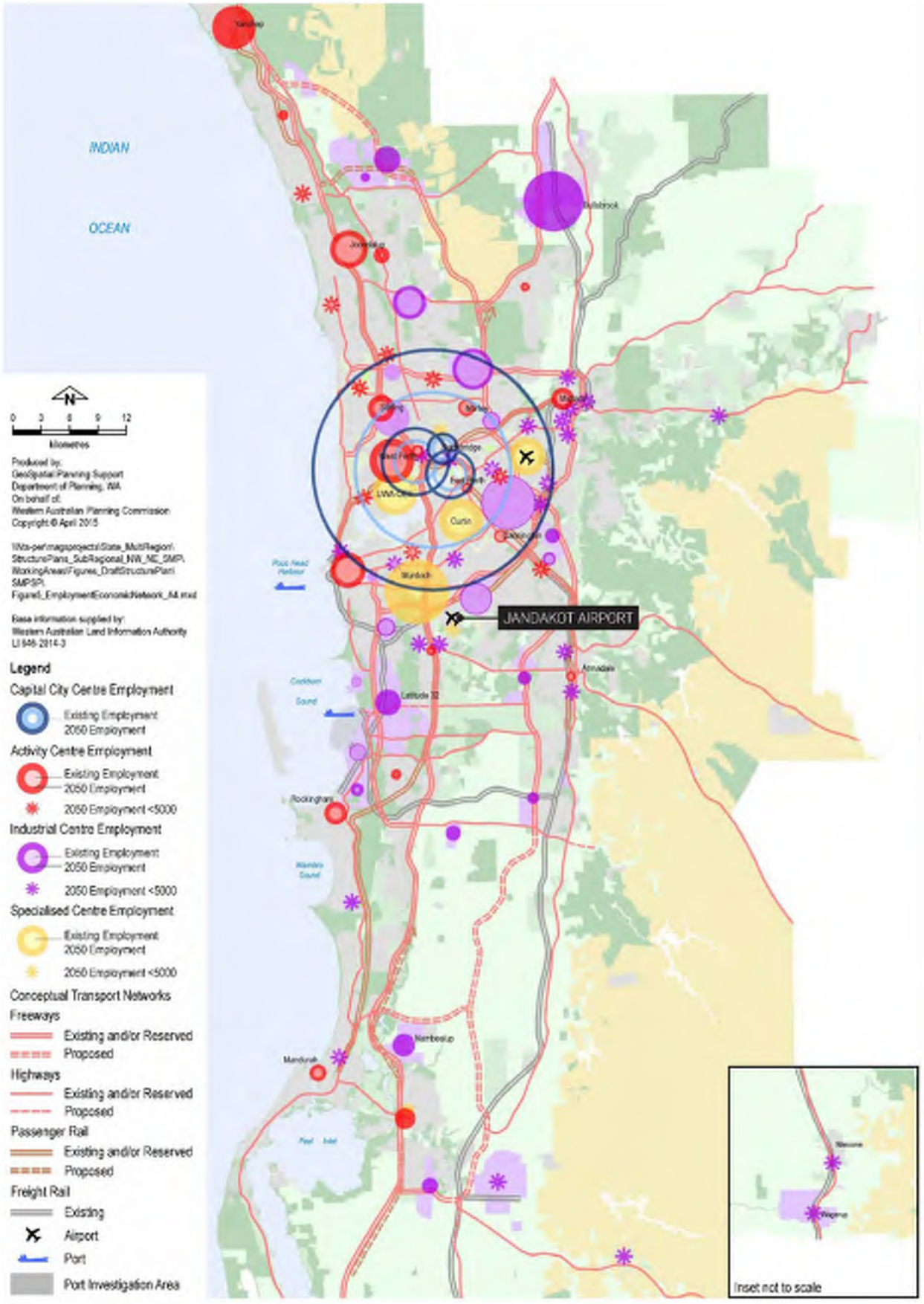
4.2.2. Other Economic Benefits

In addition to the significant employment benefits discussed above we expect the facility to provide a number of other economic benefits for the local area and broader region including:

- Providing local and regional employment in the South Metropolitan Peel sub-region and support to the wider industrial sector across the State, as well as a diverse range of local services and suppliers.
- Increased employment self-sufficiency increasing the local community's access to employment.
- Providing additional business and tax revenue for the Commonwealth and State.
- Providing an additional 'large scale' non-aviation development in the Jandakot precinct that could stimulate further economic activity in the area.
- Assisting in meeting the employment and development intensity and employment targets under the City of Cockburn Local Commercial and Activities Centres Strategy.
- Facilitating freight traffic on higher level roads, with efficient road access to other depot locations such as Perth Airport, Kewdale Intermodal, and Fremantle Port.
- Will not detrimentally impact or compete with any surrounding local businesses as the development does not include any retail operations.

Figure 4 provides a spatial context of the site at a metropolitan scale, identifying the regional road network as well as the existing and potential future industrial areas.

Figure 4 – Employment and Economic Network



Source: Western Australian Planning Commission

5. PROPOSED DEVELOPMENT

5.1. WESTERN POWER DEPOT

The proposed Depot will consist of four (4) buildings constructed with a mixture of concrete, aluminium and steel. The development will cover a total area of 10.0094 hectares and has a total covered floor area of 28,580sq.m and an uncovered floor area of 12,094sq.m.

The depot comprises of the following:

Table 4 – Summary of Building Areas

Development Component	Area (sq.m)
Building 1	
Office – 2 Levels	4,000 (NLA)
Building 2	
HV Testing & Labs	2,550
Generator Area	110
Building 3	
CEVA (drive through zone)	5,000
Store	1,300
Environmental Shed	700
Cable Drums Covered Storage Yard	1,250
Building 4	
Operations Workshop	1,200
Fleet Workshop	3,350
Fleet Office	300
Fleet Amenities	150
Oil Waste Store	1,200
Elevated Working Platform (EWP) Commissioning Area	176
Covered Tyre and Battery Store	230

There are several other covered and uncovered areas on site, comprising of storage for fleet vehicles, refuelling, wash-down, environmental waste, storage and parking.

No major signage is proposed as part of the development. The proposal is detailed in the Development Plans prepared by Meyer Shircore and Associates Architects at **Appendix A**.

5.1.1. Office Building

The proposed development comprises of 4,000sq.m of net lettable area over two levels. The office will provide for the administrational activities associated with the logistics and operations of the depot in the south-west region.

The office building will provide a high quality built form and act as the 'front door' for the development being visible from the main passenger vehicle entry point. The office building will provide workstation space, a number of meeting and training rooms, staff room and kitchen, end of trip facilities and an open courtyard for staff use.

The office has been designed to provide a direct connection with the HV testing and laboratories via a pedestrian link.

The building has been designed with a high quality of building materials internally and externally. Architectural features comprise of aluminium fins to enhance the facade, feature masonry walls and extensive glazing (refer to building elevations at **Appendix A**).

The upstairs working area façade treatment includes glazing to provide an open and inviting appearance to the street and to provide a natural light to the building. Windows are also provided to the first floor of the office to provide surveillance over staff parking area and adjacent buildings.

JAH will liaise with Airservices Australia to ensure that there is no impact as a result of reflection from the development infrastructure.

5.1.2. Workshop and Warehouse Buildings

The main component of the development is the various workshops, testing and laboratories building, logistics and storage. The workshop and warehouse buildings will house the day-to-day operations of the depot facility including:

- Vehicular maintenance
- Electronic clean room areas
- Supply stores / archives
- Laboratories
- Tyre storage
- Operations and Fleet workshops
- Oil waste storage
- Office and amenities

The workshop and warehouse buildings are separated from the office building by palisade fencing with security access to ensure the safety of staff and visitors.

5.1.3. Ancillary components

A portion of the depot comprises of ancillary components to allow for the operation of the facility. These areas are both covered and uncovered which is consistent with the nature of depot and logistic facilities.

The eastern portion of the site compromises of both a covered and uncovered heavy fleet vehicle storage and parking for trailers. Areas for environmental waste, on-site refuelling and a wash-down bay are also provided.

The western corner of the site will be occupied by an uncovered storage area to house equipment with an associated covered assembly area.

5.2. SITE LAYOUT AND DESIGN

The site layout has been carefully designed to ensure the safety of staff and visitors and encourage the most efficient operation of the depot. Access to the site is via two entrances off the Jandakot Airport internal road:

1. **Truck entry only** - in the north-eastern corner of the site providing direct access to the covered fleet parking areas and workshop buildings.
2. **Truck exit only** – in the west corner of the site separating heavy vehicles from standard vehicle internal traffic.
3. **Car entry and exit only** – access will be provided via a crossover on the northern boundary of the site providing direct access to visitor and staff parking associated with the office building. This parking area is completely secured with palisade fencing separating passenger vehicles from the heavy vehicle parking areas and workshop buildings.

The site layout has been designed to allow for the manoeuvring of light to heavy vehicle types including:

- Heavy Fleet (Large): 4m wide x 12.5m long x 4m high clear (includes EWP's Crane Borers, Crane, Jinkers).
- Heavy Fleet (Small): 3m wide x 6m long x 4m high clear (Tractor, Trailers, Forklifts, Fire Pump Equipment).
- Light Fleet: 2.6m wide x 5.5m long x 2.5m high clear (typically 4wd vehicles, some with racks and roof mounted equipment).

The Depot design is to maximise site efficiency in overall building layout, pedestrian and vehicle circulation. Efficient circulation must minimise distance travelled within the depot for typical morning and afternoon work practices.

The workshop and warehouse buildings are completely separated from the office building by palisade fencing with security access to ensure the safety of staff and visitors. Clearly marked pedestrian paths will guide staff and guests around the office building and staff/visitor parking areas. Security access will be required for vehicles and pedestrians entering the site and again when entering the workshop / depot area.

5.2.1. Environmentally Sustainable Design

Consistent with the Jandakot City Leasing and Development Guidelines, the development will include the design and implementation of sustainable building technology. As a minimum, design criteria for all buildings will conform to the energy efficiency requirements of the Building Code of Australia.

Building envelopes and internal layouts will be designed to minimise energy consumed for heating, cooling and light. Building services will be designed to minimise energy and resource use.

5.3. LANDSCAPING

The Jandakot Airport Landscape Design Guidelines contain guidance on detailed landscape treatments for the airport in order to achieve an environmentally appropriate outcome with a high level of amenity and integrated appearance.

The landscape design for the depot will be implemented in accordance with the Jandakot Airport Landscape Design Guidelines. A minimum 6.0m wide landscape strip is proposed along the entire site frontage with additional landscaping and shade trees provided throughout the car parking areas. Shade trees will become an important aspect of the development, particularly throughout the car park to provide shade, reduce urban heat island effect and assist in softening the visual impact of the parking area on the streetscape. Tree management requirements and maximum heights will be taken into account when selecting suitable shade tree species to ensure aviation operations are not impacted.

The landscape plan responds to the need for water sensitive design through the implementation of water wise principles. This includes minimal application of turf and use of drought tolerant planting that requires little to no water once established. The proposal results in a low maintenance landscape that provides space for staff to work and recreate, whilst also meeting key environmental needs. Maintenance of landscaping and planting will be in accordance with the Guidelines.

6. SITE CONDITIONS AND SERVICING

6.1. ENVIRONMENTAL

Development works associated with the creation of Precinct 6 has resulted in the removal of all remnant vegetation from the site. As such, the proposed Depot does not require any additional vegetation to be cleared.

There is no evidence of contamination within the subject site and the land is therefore suitable for the development of mixed business uses.

No significant impacts are expected as a result of the construction or operation of the proposed Depot. The site has already been cleared (under *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act) approval, 2013/7032) and does not contain fauna habitat. A Construction Environmental Management Plan (CEMP) will be required as a condition of building approval. The CEMP will address issues including:

- Acid sulphate soil management associated with excavation and dewatering
- Erosion and sediment control
- Noise
- Dust
- Waste management
- Soil disposal
- Hazardous materials management
- Onsite hydrocarbon management and refuelling
- Vehicle/plant servicing

6.1.1. Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The EPBC Act provides a level of protection for matters of national environmental significance. Specifically, the EPBC Act protects the environmental qualities on Commonwealth land and regulates the actions of Commonwealth departments and agencies. Jandakot Airport is located on land leased from the Commonwealth and therefore is subject to the Provisions of the EPBC Act.

EPBC referral 2013/7032 (Jandakot Airport Precinct 6 and 6A) was approved by the Department of Environment and Energy (DEE) (formerly the Department of Environment) in July 2014. This approval allows for the clearing of native vegetation within Precincts 6 and 6A for the subsequent mixed business and aviation developments. The conditions of approval include the acquisition of offset land, the development and implementation of a CEMP and measures to protect the Jandakot Groundwater Mound. Subsequently, the site has been cleared and is development ready.

Prior to EPBC referral 2013/7032, EPBC referral 2009/2796 (Jandakot Airport Expansion, Commercial Development and Clearance of Native Vegetation) conditions of approval allowed for the preceding development within Precincts 3, 4 and 5 of Jandakot Airport. This MDP is consistent with EPBC 2009/4796 conditions of approval.

6.1.2. Jandakot Airport Environment Strategy

The Master Plan (which includes the Environment Strategy 2014) contains a rigorous assessment of the environmental qualities of the site and sets out the planning framework to reflect the findings. Precinct 6 (including the site) has been identified for mixed business development under the Master Plan. Precinct 6 forms a logical extension of the existing mixed business precinct at the Airport. Flora surveys were conducted as part of the EPBC referral and the Master Plan. These surveys take into consideration the environmental qualities of the Master Plan area and the requirement to conserve important areas of vegetation. No further environmental assessment is required and the proposed Depot is considered consistent with the Master Plan and the development intentions for the site.

6.2. HERITAGE

6.2.1. European Heritage

No European heritage sites are recorded within the site boundary. There are however, surrounding sites in the wider locality of heritage significance and are listed on the City of Cockburn Municipal Inventory specifically:

- Dutch Windmill
- Jandakot Hall
- Jandakot School and Farm Quarters, and
- Jandakot Wool Scours

The proposed Depot is not located within close proximity and does not have any visual connection with any of these places.

6.2.2. Indigenous Heritage

The Jandakot Airport Heritage Management Plan (Appendix I of the Conservation Management Plan) was developed to ensure that JAH conducts its developments in a manner that complies with the Act and other statutory requirements in relation to areas of Aboriginal cultural significance.

The Heritage Management Plan is informed by the findings of archaeological and ethnographic site identification surveys (including the area now identified as Precinct 6) undertaken by Australian Interaction Consultants (AIC) in 2008. AIC concluded that no new ethnographic or archaeological sites were identified and a previously identified artefact scatter (Site 4309 Prinsep Road) is no longer a site within the meaning of Section 5 of the Aboriginal Heritage Act 1972. As a consequence, there are no known sites of Aboriginal significance at Jandakot Airport.

For all works involving earth disturbance, CEMPs include procedures for monitoring and further investigation in the unlikely event that a previously unknown heritage site is encountered or disturbed.

6.3. CONTAMINATION

The Contaminated Sites Act 2003 (CS Act) aims to provide transparent and up to date information on contamination within Western Australia. The Act is administered by the Department of Water and Environment Regulation (DWER) (formally the Department of Environment Regulation). DER classifies sites as reported to them within one of seven classifications, being:

- Report not substantiated
- Possibly contaminated – investigation required
- Not contaminated – unrestricted use
- Contaminated – restricted use
- Contaminated – remediation required
- Remediated – restricted use
- Decontaminated

Contamination is defined as the existence of substances at levels above that of background concentrations that present a risk to human health or the environment.

Jandakot Airport is not listed on the WA Contaminated Sites Database. The closest contaminated sites listed on the WA database are approximately 1300m to the south west and have been 'Remediated for restricted use'. Being Commonwealth Land, any existing (known and potential) and future contaminated sites will be managed under the Airports (Environment Protection) Regulations 1997 and documented within the Airport's Environmental Site Register.

6.3.1. Risk Mitigation

A CEMP will be required to be developed and implemented as a condition of building approval, which will identify all potential environmental risks and the controls that will be in place in order to manage and mitigate those risks. This will include management of wastes, hazardous materials, acid sulfate soils air quality, noise and groundwater. Western Power will be required to develop an Operational Environmental Management Plan (OEMP) prior to occupation of the new facility that will demonstrate how potential risks to groundwater quality will identify the potential environmental risks posed by their operational activities along with the proposed controls and procedures that will be implemented in order to manage and mitigate those risks. Consistent with the Groundwater Management Plan, bulk storage of potentially polluting dangerous goods and chemicals will not be permitted within the boundary of the Jandakot Underground Water Pollution Control Area (JUWPCA). Minor storage within and outside of the JUWPCA will be managed under the approved OEMP and consistent with relevant legislation and Australian Standards. Any bulk storage of dangerous goods will be subject to licensing and conditions therein under the Dangerous Goods Safety Act 2004.

6.4. GEOTECHNICAL

It is noted that the site is generally level, and will simply need to be shaped to facilitate the development of the Depot. No significant excavation is required, with the exception of the trenching for the sewer and the underground stormwater soak wells.

The Department of Water and Environment Regulation (DWER) Acid Sulfate Soils (ASS) risk mapping indicates that the majority of the site is classified as Class 2; moderate to low risk of ASS occurring within 3m of the natural soil surface but high to moderate risk of ASS beyond 3m. A small area in the south west corner of the proposed development site is classified as Class 1; high to moderate risk of ASS occurring within 3m of the natural soil surface. However, it should be noted that much of the site (including all Class 1 ASS areas) have been filled/elevated to obtain the current site levels ready for development. No disturbance of the Class 1 below the previous natural soil surface (i.e. below the 'fill') is anticipated.

The management of ASS at Jandakot Airport is detailed within the Jandakot Airport Groundwater Management Plan and the Master Plan. Triggers for ASS investigations are defined, and if investigation identifies the presence of ASS, and ASS Management Plan will be developed and implemented. These procedures will be addressed within the CEMP.

6.5. SERVICES

6.5.1. Water Supply

The location of the proposed development will allow for direct connection to the existing water main, located along Centurion Place. This water main provides for a 150mm diameter water connection for both combined domestic and fire water services. Prior to the development progressing, testing of the flows and pressures will be undertaken for the fire hydrants and fire sprinklers. If there is insufficient water, the installation of fire pumps and water storage tanks will be required.

6.5.2. Power

The subject site allows for the direct connection of the proposed Depot development to the existing underground power located in Centurion Place. JAH have allocated 2 megavolt amperes for the Depot.

6.5.3. Telecommunications

The Depot will be connected to the existing telecommunications infrastructure provided by Telstra in Centurion Place. There are several existing telecommunications pits at the front boundary of the site which will provide a connection to the Depot.

6.5.4. Gas

Gas is not currently required for the Depot operation.

6.5.5. Sewer

The subject site has access to a sewer connections from the existing sewer main located in Centurion Place, which discharge into a main prior to further discharging to a pump station.

6.5.6. Drainage

Stormwater infrastructure will be designed in accordance with the Jandakot Airport Groundwater Management Plan and the Jandakot City Leasing and Development Guidelines. As the site is partially located within the JUWPCA, the following design principles will apply:

- Stormwater from all roof surfaces will be discharged directly to soakwells within the site boundary.
- Stormwater from all roads, carparks and external hardstands within the JUWPCA boundary will be discharged via piped drainage networks into existing drainage basins located outside of the JUWPCA boundary.
- Stormwater will be retained and managed within the site boundary (excluding the JUWPCA), allowing for the retention of 1:20 year storm occurrence without water ponding on site and 1:100 year event without water entering the building(s).

7. ACCESS AND TRAFFIC MANAGEMENT

A Transport Report has been prepared by Transcore at **Appendix B** to consider any potential traffic and access considerations associated with the proposed development. A summary of the report findings is provided in the following sections.

7.1. EXISTING ROAD NETWORK

The subject site is located on the southern side of the new Precinct 6 access road that is currently nearing completion. This new access road connects to Pilatus Street with the intersection constructed as a roundabout, as shown in **Figure 5**.

Figure 5 – Existing Road Network

Source: Transcore 2017

At the time of writing this report the new access road and the adjacent section of Pilatus Street extension are nearing completion but not yet open to traffic.

Access to Precinct 6 from the district level road network is currently provided through two major road links. Karel Avenue provides connection to Roe Highway (to the north), while Berrigan Drive provides connection to Kwinana Freeway (to the south-west) and Jandakot Road (to the south-east). Pilatus Street provides an important spine road link through Precinct 6 area and will become the main southern route connecting to Jandakot Road and Berrigan Drive.

A detailed summary of the existing road network is provided hereunder:

- The **new Precinct 6 access road** is being constructed to the same standard as Spartan Street, which is a single-carriageway, two-lane, boulevard-style road with a 3m wide red asphalt median with raised traffic islands in some sections. It will have 1.5m on-road cycling lanes and a 2.5m shared path has been constructed along the northern side of the road.
- **Pilatus Street** south of Karel Avenue, transitions from a four-lane dual carriageway road into a single carriageway, two-lane road south of Marriott Road widening on its approach to Spartan Street to accommodate a right-turn pocket. It entails 1.5m on-road cycling lanes and a pedestrian path along the western side of the road and with crossing points at each intersection. The southern extension of Pilatus Street from Spartan Street to Berrigan Drive is constructed as a single-carriageway, two- lane road with potential to be upgraded to dual carriageway in future if required. The short, southernmost section of Pilatus Street north of Jandakot Road to Berrigan Drive has already been constructed to dual carriageway standard.
- **Karel Avenue** is the main access road into Jandakot Airport. It runs east-west within Jandakot Airport then turns northward and connects to Roe Highway, South Street and Leach Highway. Karel Avenue, south of Roe Highway, entails variable cross sections, changing from a two-lane divided, boulevard-style road (west of Berrigan Drive and east of Mariott Road) to a four-lane, dual-carriageway road with wide median.

Dedicated on-road cycling lanes are also provided on all sections of the road. A 2.5m wide shared path is in place along the southern side (east of Berrigan Drive) while a 3.0m wide shared path is in place along the western side of Karel Avenue north of Berrigan Drive.

The east-west section of Karel Avenue is classified as a District Distributor B road in the Main Roads WA Functional Road Hierarchy and has a posted speed limit of 70km/h. The north-south section is classified as a District Distributor A road and has a 60km/h speed limit from Berrigan Drive to Roe Highway.

- **Berrigan Drive** is constructed as a single carriageway, two-lane road (one 3.5m traffic lane in each direction with 1.5m sealed shoulders) from Karel Avenue south to Pilatus Street, then a dual carriageway road west of Jandakot Road.

Berrigan Drive is classified as a District Distributor A road and has a posted speed limit of 70km/h in this area. It forms an interchange with Kwinana Freeway about 2.5km southwest of Karel Avenue and provides a district distributor road link between Kwinana Freeway and Roe Highway.

Existing average weekday traffic counts on Karel Avenue, Berrigan Drive and Jandakot Road have been obtained from counts undertaken for Jandakot Airport in September 2015 or more recent counts from City of Cockburn and Main Roads WA websites, where available.

Existing traffic volumes are summarised in **Table 5**.

Table 5 – Existing Traffic Volumes

Road	Location	Average weekday traffic	Date
Karel Ave	E of Berrigan Dr	13,045 vpd	May 2016
Karel Ave	W of Berrigan Dr	20,093 vpd	Sep 2015
Berrigan Dr	S of Karel Ave	14,517 vpd	Sep 2015
Berrigan Dr	W of Jandakot Rd	18,032 vpd	Sep 2015
Jandakot Rd	E of Berrigan Dr	14,862 vpd	Mar 2017

7.2. TRAFFIC GENERATION & IMPACT

7.2.1. Traffic Generation

The traffic that will be generated by the proposed Western Power development will primarily be related to arrival and departure of staff and fleet vehicles travelling to and from the site each day. Visitors and delivery vehicles will only represent a small proportion of traffic flows generated by the proposed development.

Western Power has advised that the workforce operating at or from this site is estimated to be up to 750 staff of which 40 per cent are administrative staff and 60 per cent operational staff. Western Power has advised that all staff generally arrive between 6.30am and 8.00am and depart between 3.00pm and 5.00pm.

Based on advice from Western Power the following assumptions are incorporated in the traffic generation calculations:

- Typically, 10-20 per cent of staff are absent on leave or due to illness on a typical day. 10 per cent is assumed typical for the purpose of this analysis.
- Western Power will provide bus transport from Murdoch Station to the site for employees. This could be up to 20 per cent of staff but 10% is assumed for this analysis.
- Some staff will ride share or cycle to work.10 per cent is assumed for the purpose of this analysis. Typically, 20 per cent of the field vehicles are not used on any given day.

Based on these assumptions the staff movements will generate traffic flows of approximately 1,050 vehicles per day (vpd) (525 in / 525 out). This will be a combination of cars which park in the staff car park and light fleet vehicles which park in the depot area.

Visitor traffic is nominally estimated at three times the number of visitor parking bays (59 visitor spaces are proposed) which indicates approximately 350vpd (175 in / 175 out).

Fleet vehicles traffic generation assumed 80 per cent of the fleet vehicles travel from and to the site each day. Parking is provided for 138 heavy fleet vehicles, 56 small fleet vehicles and 184 light fleet vehicles. Hence it is estimated the fleet vehicles traffic generation would be approximately 600vpd (300 in / 300 out. This would include approximately 220 heavy vehicle movements per day (110 in / 110 out).

The total traffic generation of the proposed Western Power development is therefore estimated at approximately 2,000vpd (1,000 in / 1,000 out) with approximately 11 per cent heavy vehicle movements.

7.2.2. Traffic Impact on Road Network

The impact of the development traffic on major access routes is expected to be moderate and generally within the capacity of surrounding roads.

The reported existing and development-generated traffic volumes and level of increase on major roads are summarised in **Table 6**. As the eastern link to Ranford Road has not yet been constructed the traffic using that route is assigned to Karel Avenue in the interim scenario.

Table 6 – Impact on major surrounding roads – interim scenario

		Average weekday traffic		
Road	**Location**	**Existing**	**Development**	**Level of increase (%)**
Karel Ave	E of Berrigan Dr	13,100 vpd	1,260 vpd	9.6%
Karel Ave	W of Berrigan Dr	20,100 vpd	1,260 vpd	6.3%
Pilatus St (Berrigan Dr)	N of Jandakot Rd	14,500 vpd	660 vpd	4.6%
Berrigan Dr	W of Jandakot Rd	18,000 vpd	500 vpd	2.8%
Jandakot Rd	E of Berrigan Dr	14,900 vpd	160 vpd	1.1%

The existing traffic volumes on the 350-metre section of Karel Avenue between Roe Highway and Berrigan Drive are already relatively high for a two-lane divided road but it is understood that the State Government plans to upgrade this section of Karel Avenue to dual carriageway standard (two lanes each way) in 2018. The upgraded Karel Avenue will provide sufficient capacity for the long term projected traffic flows on Karel Avenue and will be more than sufficient to accommodate the traffic generated by the proposed Western Power depot development.

7.3. FUTURE ROAD CONNECTIVITY

The Master Plan identifies a number of road improvements that are planned to be implemented. These are identified as follows:

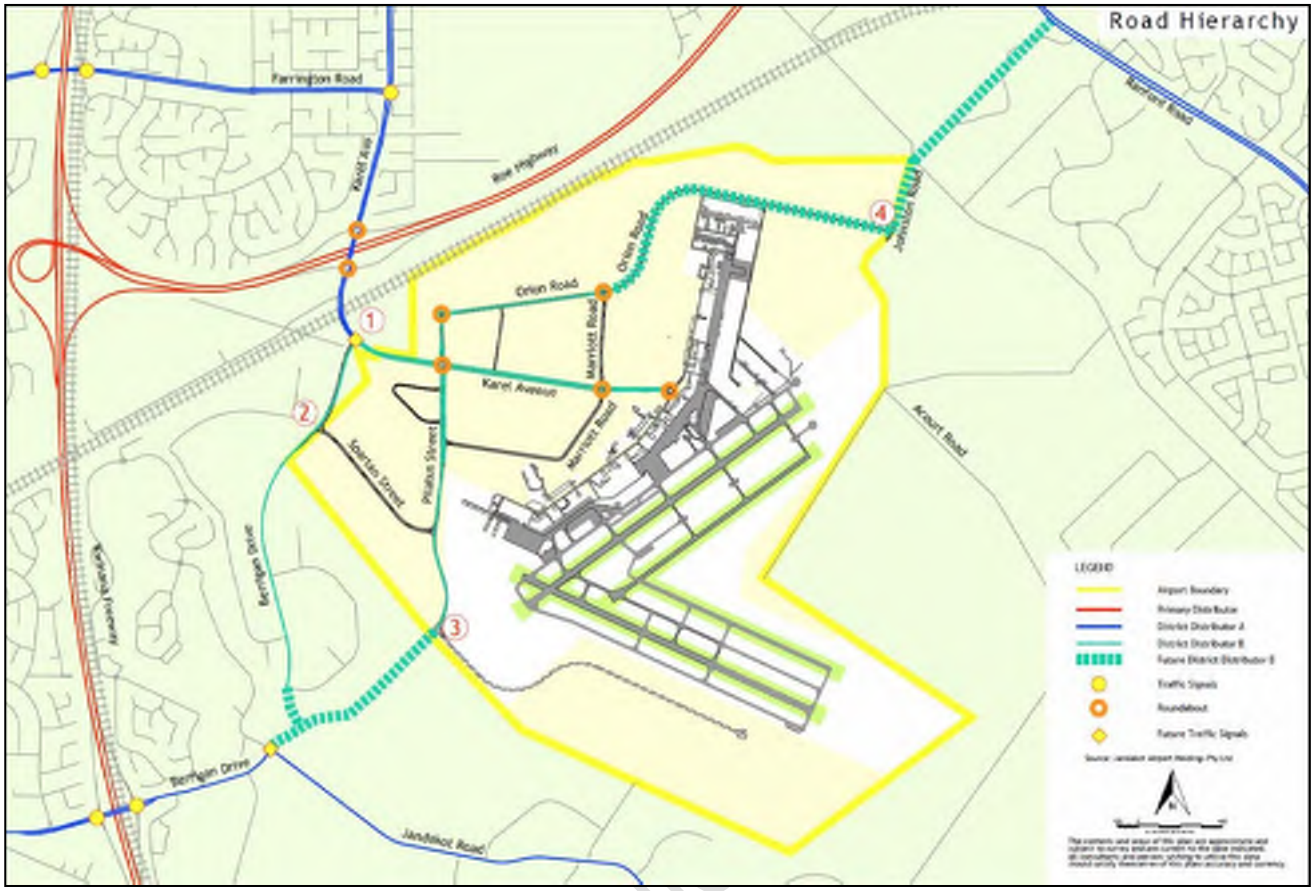
- *Berrigan Drive between Kwinana Freeway and Jandakot Road will be upgraded to four-lane divided road standard. The City of Cockburn has commenced the design of these works;*
- *Karel Avenue between Berrigan Drive and Roe Highway may be upgraded to a four-lane divided road. Additional investigation by Main Roads WA will determine the Karel Avenue and Roe Highway interchange upgrade requirements. Main Roads WA is responsible for the design and construction of these works, should they be required;*
- *The East Link road requires a two-lane arterial road with turn lanes at controlled junctions to be built along the Johnston Road alignment to join Ranford Road. JAH will then build the extension of Orion Road to meet Johnston Road at the airport boundary. The State Department of Planning proposes to designate a Regional Roads reservation in the Metropolitan Region Scheme from the airport boundary to Ranford Road wide enough for this new road to be upgraded to four-lane divided if required in future;*
- *The South Link road (Pilatus Street) is proposed as a two-lane arterial road with turn lanes at controlled junctions;*
- *The Berrigan Drive and Karel Avenue intersection will be upgraded to a signalised intersection to replace the existing single-lane roundabout; and*
- *The intersection of Berrigan Drive, Jandakot Road, the South Link road (Pilatus Street) and Dean Road will be upgraded to a signalised intersection by the City of Cockburn. These works will include the diversion of Berrigan Drive (north) into a T-junction with the South Link road (Pilatus Street).*

Pilatus Street is currently under construction southwards from the Jandakot Airport boundary to Berrigan Drive as planned in the Master Plan. A new signalised intersection at Berrigan Drive / Jandakot Road / Pilatus Street / Dean Road intersection became operational around May 2017. This included the realignment of Berrigan Drive to connect at a new T-intersection on the new Pilatus Street alignment.

It is understood that the State Government has set aside funds to upgrade the section of Karel Avenue between Roe Highway and Berrigan Drive to dual carriageway standard (two lanes each way), in accordance with the long term requirements for the Master Plan, with this work to be tendered by the end of this year for construction in 2018.

A future road (the eastern link) connecting Jandakot Airport with Ranford Road is proposed in the Master Plan (refer to **Figure 6** which details the future traffic flows at 2034).

Figure 6 – Future Traffic Flows 2034



Source: Jandakot Airport Master Plan 2014

7.4. PARKING & MANOEUVRING

The development will include 28,580sq.m of floor space including 4,000sq.m of office space in a two-storey office building, workshops, storage and heavy fleet parking areas. In addition, the development includes 12,094sq.m of uncovered floor area and extensive parking areas and hardstand.

The proposed parking provision includes a staff and visitor car park for 426 cars and parking bays for 138 heavy fleet vehicles (4m x 12.5m bays), 56 small fleet vehicles (3m x 6m bays) and 184 light fleet vehicles (2.6m x 5.5m bays).

The Master Plan requires adequate parking based on standards similar to the City of Cockburn requirements. In accordance with the City of Cockburn LPS 3, the following parking rates have been reviewed for guidance:

- Industry–Light – 1:50m^2 GLA
- Storage, Warehouse – 1:1 employee
- Transport Depot – 1:1 employee

Based on the assumptions outlined in section 7.2.1, a total of 525 staff vehicles will enter and exit the site per day which will be a combination of cars utilising the staff car park and light fleet vehicles which park in the depot area.

A total of 610 car bays comprising exclusively of staff parking and light fleet vehicles are provided. This is a rate of 1 bay per 47m^2 GLA of covered floor space and provides 1.16 bays per employee. In addition, 138 heavy vehicle and 56 small fleet vehicle car bays are provided in the depot area.

Given the nature of the depot operations more than sufficient parking is provided to service the proposed development.

Secure bicycle parking will be provided for 40 bicycles and separate male and female end-of-trip facilities are included.

The development will provide security fencing with sliding access gates for vehicle access (one driveway for the car park and two driveways for fleet vehicles, one entry only and one exit only). All three driveways will connect to the new Precinct 6 access road. Additional boom gate control is shown for the staff parking area separate from the visitor parking area adjacent to the two-storey office building at the front of the site.

The vehicle fleet operated by Western Power is generally up to 12.5m rigid vehicles but the site is required to be designed generally to accommodate turn movements by 19m semi-trailers and to allow for through movement by 27.5m B-doubles which may visit the site less frequently, as well. The Development Plans at **Appendix A** illustrate the turn paths for 27.5m B-doubles throughout the site, demonstrating that that size of vehicle is easily accommodated by the proposed site layout.

7.5. PUBLIC TRANSPORT

There are limited public transport services available at the subject locality at present. The nearest bus route (bus route 515 operating between Murdoch Station and Berrigan Drive/Turnbury Park Drive) runs on Berrigan Drive west of Precinct 6. Route 515 also deviates down Karel Avenue to Compass Road/Eagle Drive several times a day.

8. JANDAKOT AIRPORT MASTER PLAN ASSESSMENT

8.1. JANDAKOT AIRPORT MASTER PLAN 2014

Under Section 69 of the Act, each airport is required to produce a master plan. The Master Plan is the current master plan in place for Jandakot Airport.

Under Section 94(5) of the Act, a major development plan cannot be approved unless it is consistent with the relevant final master plan.

The subject site is located within 'Precinct 6 Mixed Business'. A 4 hectare portion of the site is also identified as 'Existing and Proposed Service Area' which was originally identified in the Master Plan for a stormwater drainage management system, however it is no longer required.

This proposal adheres to this vision in that is it constitutes a development proposal that will work towards the creation of a mixed business precinct that will be compatible with the aviation uses. An assessment of the proposal against the objectives of the Master Plan is provided in **Table 7**.

Table 7 – Assessment of Master Plan Objectives

	Objectives	Assessment
Development Objectives	Maintain Jandakot Airport as a leading General Aviation facility through investment in infrastructure necessary to satisfy the forecast operational requirements.	The proposal is not a sensitive land use and will operate independently to Jandakot Airport. Therefore, there will be no implications on Jandakot Airport's operational requirements.
	Enhance the airport's contribution to WA employment and economic growth through appropriate aviation and non-aviation development.	The proposal will provide new employment opportunities for the Jandakot area and is considered an appropriate non-aviation development.
	Encourage sustainable development of the airport land through consideration and integration of environmental, financial and social values and stakeholder interests.	The proposed development will attract a significant workforce to the local area bring financial and social return to Jandakot. The land earmarked for development has already been cleared and the EPBC referral was approved by DEE in July 2014.
	Ensure the long-term viability and sustainability of the airport and its stakeholders through effective planning, development and management.	The proposal has been designed in accordance with the requirements of the applicable planning framework, specifically the Master Plan, and will contribute to the sustainable viability of the airport.
	Provide a safe, secure, reliable and efficient airport operating environment.	As above, the proposal will have no implications on the operational requirements of Jandakot Airport.
Planning Objectives (non-aviation)	Integrate the airport's overall aviation and nonaviation development.	The proposed Depot is of a scale consistent with development typically located within an airport area. The use is not sensitive and can operate in parallel to the airport.

	Objectives	Assessment
	Accommodate the planning constraints unique to airport property such as aircraft noise modelling and airspace surfaces that place land use conditions and building height limitations on development.	The proposal has been designed in accordance with the regulatory requirements. Refer to Section 10.
	Respect and integrate the current regional and local planning schemes surrounding the airport with the aviation and non-aviation land uses, as required by the Airports Act 1996.	An assessment of the proposal against the City of Cockburn's local planning framework has been provided in Section 9. The assessment confirms the proposal is generally consistent with the provisions of the City's strategic and statutory planning framework.
	Respect the planning efforts of airport neighbours such as the City of Cockburn, City of Melville and City of Canning.	The proposal has been designed in accordance with the requirements of the Master Plan which has been prepared in consultation with the City of Cockburn, Melville and Canning.
	Ensure that development provides a pleasant environment for visitors to, and workers at, the airport.	The proposal has been designed to be sympathetic to the street and the surrounding area. A high level of landscaping will provide a pleasant environment for visitors and workers.
	Provide alternative revenue streams to diversify income and reduce the risk of a single source income.	The proposal will diversify the current business/commercial offerings through introducing a new use and large scale business operation of Jandakot Airport area.
Precinct Objectives	**Development**: provide a mixed-use business park-like setting, with appropriate land uses having regard to the Jandakot Underground Water Pollution Control Area.	The proposal will be designed to fit into the mixed business setting. The proposal's compliance with the JUWPCA is discussed is Section 6.5.6 and 8.2.1.
	Desired Character: support warehouse and storage land uses, consistent with the City of Cockburn's 'Mixed Business' zone, with development to be controlled to prevent impacts to the Jandakot Water Mound.	The proposal captures a variety of uses including Industry – Light, Warehouse, Office and Storage. These uses are consistent with the objectives of the Mixed Business zone. Further details are provided in Section 9.
	Envisioned Development: the precinct will be developed primarily with warehouse and storage type land uses. These land uses will be in accordance with those listed as discretionary uses for the precinct in Table 3.2 of the Master Plan.	Like the above, the proposed uses are consistent with the discretionary uses envisioned for Precinct 6 under the Master Plan. Further details have been provided in Section 8.8.1.

8.1.1. Non-Aviation Development – Precinct 6

The objective of Precinct 6 is to provide a mixed-use business park-like setting and to provide uses appropriate for the JUWPCA (for the eastern half of the Precinct and a small strip on the southern boundary).

Precinct 6 will support office, business, professional services, warehouse, manufacturing and storage type development and land uses that will be generally consistent with the City of Cockburn's 'Mixed Business' zone and will be controlled to prevent impacts to the Jandakot Water Mound.

Discretionary uses that are consistent with the development proposal include:

- Industry – Light
- Industry – Service
- Motor Vehicle Repair
- Warehouse
- Office
- Storage Yard

The Depot is entirely consistent with the precinct intent for 'Mixed Business' land uses.

8.2. JANDAKOT AIRPORT ENVIRONMENT STRATEGY

The Environment Strategy (2014) is incorporated in Master Plan (2014) in accordance with the changes to the Act. This Environment Strategy describes how JAH will meet the environmental management requirements of the Act. It has been developed with consideration of current airport operations as well as proposed future development.

As stated in Section 6.1.1, the Master Plan and the Environment Strategy included a rigorous assessment of the environmental qualities of the site and set out the planning framework to reflect the findings. EPBC referral 2013/7032 (Jandakot Airport Precinct 6 and 6A) was approved by the DEE in July 2014.

This approval allows for the clearing of native vegetation within Precincts 6 and 6A for the subsequent mixed business and aviation developments. The conditions of approval include the acquisition of offset land, the development and implementation of a CEMP and measures to protect the Jandakot Groundwater Mound. Subsequently, the site has been cleared and is development ready.

8.2.1. Jandakot Underground Water Pollution Control Area (JUWPCA)

The western and southern extent of Jandakot Airport is located within the JUWPCA (refer to Plan number SK005 prepared by Meyer Shircore and Associates Architects at **Appendix A)**. The subject site is partially located within the Priority 1 (P1) area, being the highest priority area established under the powers of the Metropolitan Water Supply, Sewerage, and Drainage Act 1990.

The EPBC Act Approval Conditions required the Jandakot Ground Water Management Plan (GWMP) to be developed. Associated with the GWMP, Jandakot Airport has a number of control measures in place in order to protect groundwater quality from the impact of land use operations; these include, but are not limited to:

- Operational and Construction Environmental Management Plans;
- Regular audits of tenant operations;
- Installation of piped sewerage system;
- Installation of stormwater infrastructure to capture stormwater from roads, carparks and hardstands within the JUWPCA as detailed in section 6.5.6;
- Development and implementation of a Local Water Management Strategy; and
- Installation of groundwater monitoring bores and undertaking groundwater quality monitoring.

The subject site is partially located within the JUWPCA (Ground Water Protection Boundary). Existing developments at the airport that are located within the JUWPCA are managed in accordance with the Jandakot Airport Groundwater Management Plan. The Groundwater Management Plan will similarly be applied to Precincts 6 where the proposed development is located.

Western Power will be required to prepare a Tenant Operation Environmental Management Plan which will further ensure that the appropriate groundwater protection measures are in place.

8.2.2. Management Plans

A number of environmental factors at the airport are managed through specific management plans, programs and strategies. Many of these plans, such as the Conservation Management Plan, are linked to EPBC approval conditions and require the approval of the Minister for DEE.

Management Plans relevant to this proposal include:

- **Construction Environmental Management Plan**

  All construction/civil works (including demolition) with the potential for environmental impacts require a CEMP, which must be reviewed and endorsed by the JAH Environmental Management team prior to works commencing. The requirement for CEMPs is typically included as a condition of the building/works/ demolition permit.

- **Tenant Operational Environmental Management Plans**

  Jandakot Airport tenants are responsible for managing their own operations in an environmentally responsible manner. JAH has developed guidelines and templates to assist tenants in the development of Operational Environmental Management Plans (OEMPs).

  The requirement for a tenant OEMP is directly linked to a tenant's environmental risk profile as defined in the Jandakot Airport Tenant Environmental Risk Allocation and Auditing Frequency Criteria. An OEMP will be developed and implemented prior to occupation.

The specific requirements for both of the aforementioned management plans will be provided by JAH as part of the Development Application (or required as a condition of approval). As no clearing or demolition are proposed as part of this MDP, no Management Plans are required relating to these activities.

9. STATE & LOCAL PLANNING FRAMEWORK

9.1. STATE PLANNING FRAMEWORK

The proposed Depot has been considered within the context of the State planning framework. An assessment of the against the key planning documents has been provided in **Table 8**.

Table 8 –State Planning Framework Assessment

Document	Summary	Assessment
Western Australian State Aviation Strategy (2015)	The Strategy is the first developed for WA and complements the Federal Aviation Policy. The objectives of the strategy are: • To support the economic and social development of Western Australia through the provision of safe, affordable, efficient and effective aviation services. • To provide a sound framework for policy setting and future planning and investment in Western Australia international and domestic air services and airport infrastructure.	The proposed Depot is consistent with the State Aviation Strategy. The proposal will provide services to the community and employment opportunities that will contribute to the economic and social development of Western Australia. The Depot will adhere to the framework of the Strategy with the implementation of land-use that is appropriate for an airport location and contributes to Western Australia's future directions for the Jandakot Airport area.
State Planning Strategy 2050	The State Planning Strategy is the lead strategic planning document within the Western Australian State Government. The Strategy sets out a broad framework for the integration and coordination of strategic planning across various State, Regional and Local jurisdictions, to the year 2050.	In this regard, the proposed Depot contributes to the broad principles of the Strategy, particularly in relation to the facilitation of employment opportunities and consolidation of services to one strategic location.
Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon	This high-level spatial framework and strategic plan for Perth and Peel establishes a vision for the future expansion of Perth and Peel which is expected to grow from 1.65 million to 2.2 million people by 2031. Jandakot Airport is identified as a 'Specialised Centre' and located within the 'South-West Sub-Region' under Directions 2031. Specialised centres generally have strategic specialised roles based around major institutions or airports.	The proposed Depot will further the role of Jandakot Airport as a 'Specialised Centre' through the 'logistic services' use as part of the non-aviation uses that support Jandakot Airport.

Document	Summary	Assessment
(Draft) Perth and Peel @ 3.5 Million	Perth and Peel @ 3.5 million was released is the strategic land-use framework that builds upon the principles of Directions 2031 and Beyond. Perth and Peel @ 3.5 million sets out underlying principles that accommodates significant population growth towards 2050.	Consistent with the objectives of Perth and Peel @ 3.5million, the proposed Depot offers a compatible use to the aviation environment and will generate employment opportunities.
(Draft) South Metropolitan Peel Sub-Regional framework	The South Metropolitan Peel Sub-Regional Planning Framework is one of three frameworks prepared for the outer sub-regions of Perth and Peel that support the overarching Perth and Peel at 3.5 million strategic framework. Specifically, the Jandakot Specialised Centre is identified as having a primary function of 'Aviation and Logistic Services'.	The proposed Depot will directly contribute to achieving the objectives of the South Metropolitan Peel Sub-Regional framework through its contribution to employment and economic development. The proposed development of the Depot facility is strongly aligned with this objective.
Metropolitan Region Scheme	The Jandakot Airport is located within a 'Public Purpose – Commonwealth Government' reserve of the Metropolitan Region Scheme (MRS).	The proposal will not reduce the operational capacity of the airport, and is consistent with the types of uses commonly co-located at airports. The proposal is consistent with the MRS reserve.
State Planning Policy 2 – Environmental and Natural Resources	State Planning Policy No. 2 (SPP 2) defines the principles and considerations that represent good and responsible planning in Western Australia in relation to environment and natural resource issues. The relevant objectives of the policy are to: • Integrate environment and natural resource management with broader land use planning and decision-making; and • Protect, conserve and enhance the natural environment.	The proposed Depot will not adversely impact on the protection of water resources or the quality of air, soil and land, as discussed in Section 8.2.
State Planning Policy 2.3 – Jandakot Groundwater Protection Policy	State Planning Policy No. 2.3 aims to protect the Jandakot Groundwater Protection Area from development and land uses that may have a detrimental impact on the water resource. The objectives of this policy include: • ensuring that all development and changes to land use within the policy area are compatible with maximising	The subject site is partially located within the JUWPCA (Ground Water Protection Boundary). Existing developments at the airport that are located within the Jandakot Mound's Source Protection Area are managed appropriately. The Groundwater Management Plan will similarly be applied to Precincts 6 where the proposed development is located.

Document	Summary	Assessment
	the long-term protection and management of groundwater, in particular for public drinking water supply; and • To prevent, minimise or manage development and land uses that may result in contamination of groundwater.	Western Power will be required to prepare a Tenant Operation Environmental Management Plan which will further ensure that the appropriate groundwater protection measures are in place. Refer to Section 8 for further details of compliance.
State Planning Policy No. 3 – Urban Growth and Settlement	This policy sets out the principles and considerations which apply to planning for urban growth and settlements in Western Australia. The relevant objectives of the policy include: • To promote sustainable and well-planned settlements across the state with the provision of sufficient and suitable land for housing, recreation, open space and employment; • Concentrate investment in the improvement of services and infrastructure; and • Promote the development of liveable neighbourhood form that provides convenient access to employment and services.	The proposed Depot will further the objectives of SPP 3 through contributing to employment opportunities and consolidating jobs in an established area. The provision of a consolidated Depot will also improve the delivery of infrastructure and services to the community.
State Planning Policy 4.1 – State Industrial Buffer	The purpose of State Planning Policy 4.1 – State Industrial Buffer is to provide a consistent state wide approach for the protection and long-term security of sites including industrial zones and transport terminals. The objectives of SPP4.1 includes: • The provision of definition and securing of buffer areas around industry, infrastructure and some special uses. • To protect industry, infrastructure and special uses from the encroachment of incompatible land uses.	The proposal is a compatible land use in the vicinity of Jandakot Airport and forms part of the non-aviation precinct of the Airport as envisaged by the Master Plan.
State Planning Policy 4.2 – Activity Centres for Perth and Peel	The State Planning Policy 4.2 Activity Centres for Perth and Peel defines a hierarchy of centres. Jandakot Airport is defined as a 'Specialised Centre' in the hierarchy. These centres focus on regionally-significant economic or institutional activities that attract	The proposed Depot will introduce significant employment opportunities to the Jandakot Airport area. The use is compatible to the intended function of the Specialised Centre supporting the

Document	Summary	Assessment
	substantial numbers of people. The Specialised Centre for Jandakot Airport has a primary function of aviation and logistic services.	development on complementary, non-aviation uses.
State Planning Policy 5.3 – Jandakot Airport Vicinity	The objectives of State Planning Policy 5.3 – Jandakot Airport Vicinity is to: • Protect Jandakot Airport from encroachment by incompatible land use and development, so as to provide for its ongoing, safe, and efficient operation; and • Minimize the impact of airport operations on existing and future communities with particular reference to aircraft noise. SPP 5.3 applies to two main areas: • Core Area – defined by the 20 ANEF contour • Frame Area – defined by the area bounded by This area is defined by Roe Highway, Ranford Road, Warton Road, Armadale Road and the Kwinana Freeway but does not include areas within the ANEF.	The subject site is located partially within the Core Area with the majority of the site located in the Frame Area. Appendix 1 of the policy identifies that 'Industry, warehouse, storage, transport depot' uses (including any ancillary components such as office) are 'Acceptable' in both the Core and Frame areas. As such the proposal is compliant with this policy.
State Planning Policy 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning	The policy aims to promote a system in which sustainable land use and transport are mutually compatible. The relevant objectives include: • Protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of proposals; and • Protect major transport corridors and freight operations from incompatible urban encroachment.	The level of traffic and noise generated by the proposal is of a scale consistent with the function of Jandakot as a Specialised Centre. Further details on the traffic and noise assessments has been provided in Section 7 and Section 10.

9.2. LOCAL PLANNING FRAMEWORK

9.2.1. City of Cockburn Local Commercial and Activity Centre Strategy

The City of Cockburn's Local Commercial and Activities Centres Strategy (LCACS) was released in 2012 and provides the strategic framework for the planning and development of the City's activity centres over the next 15 years. The LCACS was developed in line with the principles of Directions 2031 and State Planning Policy 4.2 Activity Centres for Perth and Peel, which sets out the activity centre hierarchy. In alignment with these strategic policy directions, the LCACS sets out its localised activity centre hierarchy for the City of Cockburn local government area (LGA).

The site is located within the Jandakot Airport Industrial Area, which is identified under the LCACS as a Strategic Specialised Centre. LCACS and State Planning Policy 4.2 recognise that Strategic Specialised Centres present a unique opportunity for complementary development. Specifically, the LCACS has identified development intensity, diversity and employment as the key factors affecting the centres economic performance.

The LCACS has identified an employment gap (shortfall) for the Jandakot Airport Centre of 1,953 to 3,568 jobs depending on population growth over the next 20 years. Directions 2031 expectations that the south-west subregion (including the City of Cockburn) needs to increase employment self-sufficiency to a rate of 70%, the equivalent of 41,000 new jobs by 2031.

The proposed Depot will provide several benefits aligned with the issues identified by the LCACS. The proposal will aid the intensification of the locality as well as providing for the further diversification of land use activities surrounding the airport and supporting up to 750 employees in the Jandakot Strategic Specialised Centre. Therefore, the proposed Depot is aligned with the overall intent of the Jandakot Strategic Specialised Centre.

9.2.2. City of Cockburn Town Planning Scheme No. 3

The Master Plan was developed in consultation with the City of Cockburn and was based on the provisions and operation of the City of Cockburn Local Planning Scheme No 3 (LPS 3). The Master Plan adopts the same zoning terminology as the City of Cockburn's LPS 3. However, it is highlighted that the Master Plan is the guiding statutory documents for development on the airport land.

The proposed Depot is located within the Master Plan 'Precinct 6' which supports office, business, professional services, warehouse, manufacturing and storage type development. The uses of Precinct 6 are generally intended to be consistent with the City of Cockburn's 'Mixed Business' zone.

The objective of the Mixed-Use zone under the LPS 3 is to:

> *'Provide for a mixed-use environment that includes residential development and a range of compatible smaller scale commercial uses such as office, retail and eating establishments.'*

The proposed Depot incorporates aspects of several land use definitions under the LPS 3. These uses include:

- Industry Light
- Warehouse
- Office
- Storage Yard (storage of commercial vehicles)

The proposed development is generally consistent with the LPS 3 land use categories and support the intent of the Mixed Business precinct of the Master Plan.

9.2.3. Local Planning Policies

The City of Cockburn has a suite of planning policies that apply in a range of circumstances for application made within the City's boundaries. The following policies will be relevant for the use of the site for the purpose of a Depot. It is important to note that, the policy provisions are not strictly enforced and variations to any prescribed standards are possible.

The local planning policies provide the supplementary requirements for the development of industrial land which includes both the industrial and mixed business areas. The key local planning policy to be considered include:

- Local Planning Policy 3.7 – Signs and Advertising
- Local Planning Policy 3.9 – Industrial Development
- Local Planning Policy 5.6 – Vehicle Access
- Local Planning Policy 5.7 – Uniform Fencing

The development is generally consistent with the City of Cockburn planning framework, however the provisions set out in the Master Plan and Jandakot City Leasing and Development Guidelines prevail.

10. NOISE & FLIGHT PATH IMPACTS

10.1. NATIONAL AIRPORTS SAFEGUARDING FRAMEWORK

The current and future safety of aircraft operations and long term sustainability and viability of the airport can be adversely impacted by inappropriate land use and activities in areas surrounding the airport.

The National Airports Safeguarding Advisory Group (NASAG) was established to prepare a National Airports Safeguarding Framework (NASF). The NASF is a national land use planning framework that aims to:

- Improve community amenity by minimising aircraft noise-sensitive developments near airports including through the use of additional noise metrics and improved noise-disclosure mechanisms; and
- Improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions through guidelines being adopted by jurisdictions on various safety-related issues.

The draft NASF was released for public comment in March 2012, and endorsed by Commonwealth, State and Territory Ministers at the Standing Council on Transport and Infrastructure (SCOTI) meeting in May 2012. The national land use planning framework will ensure future airport operations and their economic viability are not constrained by incompatible residential development.

The proposed development does not fall inside the boundary of a Public Safety Zone.

The proposed development satisfies the NASF guidelines as outlined in **Table 9** below.

Table 9 – NASF Guidelines

NASF GUIDELINE	RESPONSE
Guideline A: Measures for Managing Impacts of Aircraft Noise	See 10.2 Noise Exposure.
Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports	See 10.9 Building Generated Windshear.
Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports	See 10.10 Bird & Animal Hazard Management.
Guideline D: Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation	Not applicable to the proposed development.
Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports	See 10.3 Lighting Restrictions.
Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports	See 10.4 Protection of Airspace.
Guideline G: Protecting Aviation Facilities, Communications, Navigation and Surveillance (CNS).	See 10.11 Navigation Aids.

10.2. NOISE EXPOSURE

Section 91(1)(e) of the Act requires an MDP to identify whether the proposed development will affect noise exposure levels.

For land use planning purposes in Australia, noise impact is illustrated using the Australian Noise Exposure Forecast (ANEF). An ANEF chart displays the predicted noise exposure levels for aircraft movements 20 years into the future. The ANEF chart illustrates noise contours plotted at 20, 25, 30, 35 and 40 ANEF units. The contour plot is the calculated total noise energy at that given point on the ground on an annual average day. The higher the ANEF value, the greater the expected exposure to aircraft noise in that area.

The ANEF is referenced in Australian Standard AS2021-2015 'Acoustics - Aircraft Noise Intrusion – Building Siting and Construction' that provides land use planning and building treatment guidance in the vicinity of airports. **Table 10** below displays the restrictions that AS 2021-2000 places on the types of new developments which can be built within various ANEF contours.

Table 10 – Building Type Acceptability in ANEF Zones

BUILDING TYPE	ACCEPTABLE	CONDITIONAL	UNACCEPTABLE
House, home, unit, flat, caravan park	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF

The proposed development is located outside of the ANEF 30 contour on the Jandakot Airport Ultimate capacity ANEF. With reference to AS 2021-2015, the proposed development is classified as a Commercial Building and is therefore deemed to be 'conditionally acceptable' for aircraft noise intrusion. AS 2021-2015 recommends that the maximum noise level from aircraft noise inside commercial buildings and offices should be reduced to 75 decibels (dBA). The location, design and construction of the proposed development will be consistent with the provisions of this standard.

The National Airports Safeguarding Framework 'Guideline A: Measures for Managing Impacts of Aircraft Noise' acknowledges that the 20 ANEF and 25 ANEF zones do not capture all high noise affected areas around an airport and proposes consideration of calculated average daily aircraft noise events for new developments. The 2029/30 N60 Contours, as prepared for Master Plan 2014, shows that the development site is located within the contours for 100 average daily noise events exceeding 60 dB(A).

Given the nature of the proposed development operations to be conducted at the site, these aircraft noise events are not expected to disrupt the proposed commercial activities.

10.3. LIGHTING RESTRICTIONS

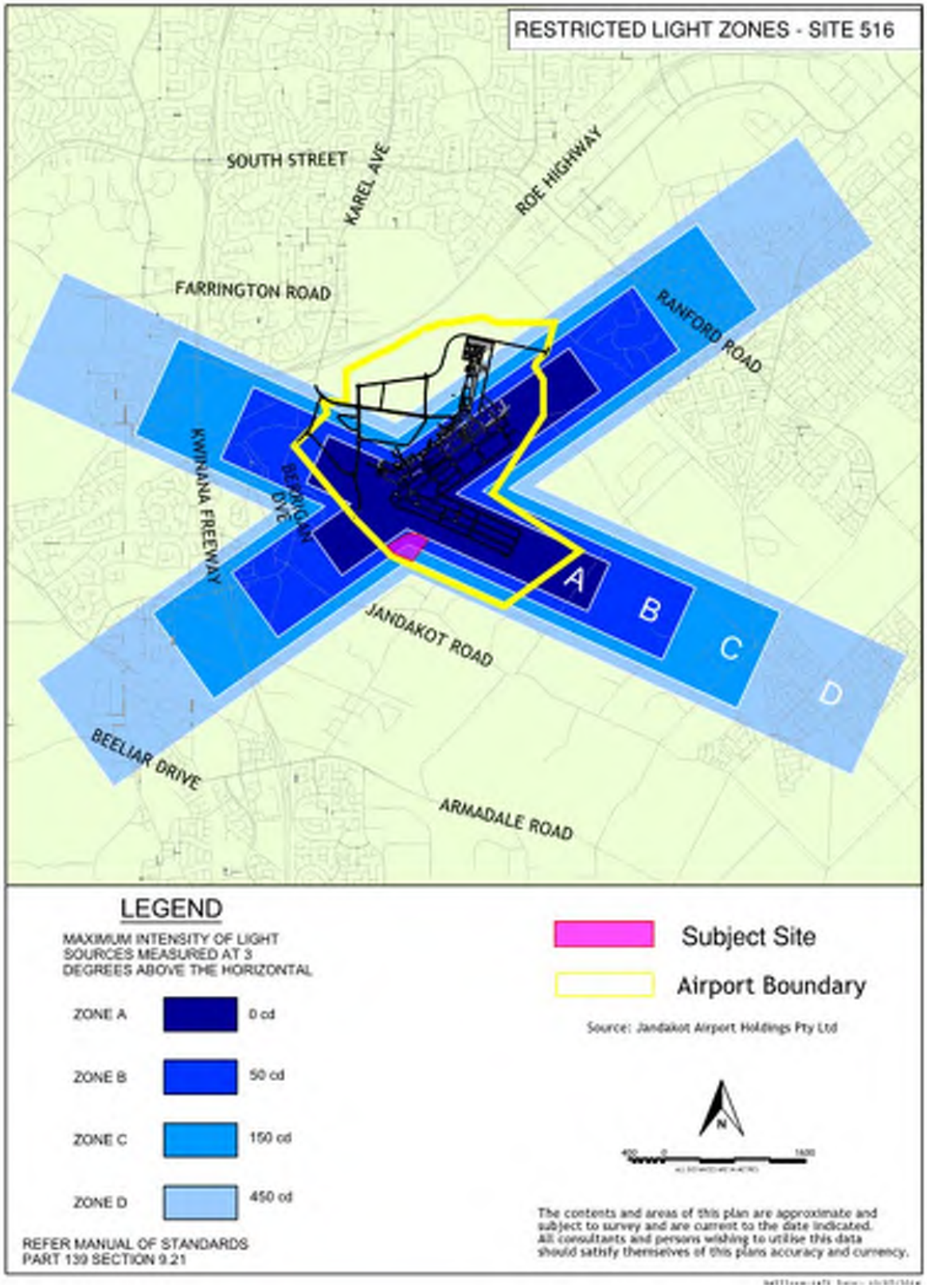
The Civil Aviation Safety Authority has the authority, under the Civil Aviation Regulations 1988, to control ground lights where they have the potential to cause confusion or distraction (from glare) to pilots in the air. CASA has established guidelines (Manual of Standards Part 139 Section 9.21 - Lighting in the Vicinity of Aerodromes) on the location and permitted intensities of ground lights within a 6km radius of an airport.

The development site is located in Restricted Light Zones B and C. This limits the maximum intensities of ground lights to 50 to 150 candela (cd). These luminosity restrictions ensure no interference for pilots approaching to land. All external light fittings and temporary lighting used during the construction of the proposed development will comply with the Restricted Light Zone requirements and CASA guidelines. In line

with the National Airports Safeguarding Framework 'Guideline E: Managing the Risks of Distractions to Pilots from Lighting in the Vicinity of Airports', any proposals for coloured lights will be referred to CASA for detailed guidance. JAH will ensure that ground lighting complies with CASA requirements so as not to impact ATC operations.

Figure 7 identifies the location of the subject site within the Restricted Lighting Zones.

Figure 7 – Restricted Lighting Zones



SOURCE: JAH PTY LTD

10.4. PROTECTION OF AIRSPACE

The Department of Infrastructure and Regional Development protects the airspace around leased Federal airports under the *Airports Act 1996* and the *Airports (Protection of Airspace) Regulations 1996*.

Obstructions and obstacles in the vicinity of an airport have the potential to create air safety hazards and to seriously limit the scope of current and future aviation operations into and out of an airport.

International and national standards have been adopted that define two sets of invisible surfaces to delineate the various airspace obstacle protection areas: the Obstacle Limitation Surface; and Procedures for Air Navigation Services - Aircraft Operations surfaces. Prescribed airspace is the airspace above any part of either of these surfaces.

The development is clear off the obstacle limitation surface, the take-off and approach splay, the PANS-OPS surface and the VSS, and therefore does not affect any flight path.

The potential of reflective glare off the building will be considered and mitigated in the design development stage of the project.

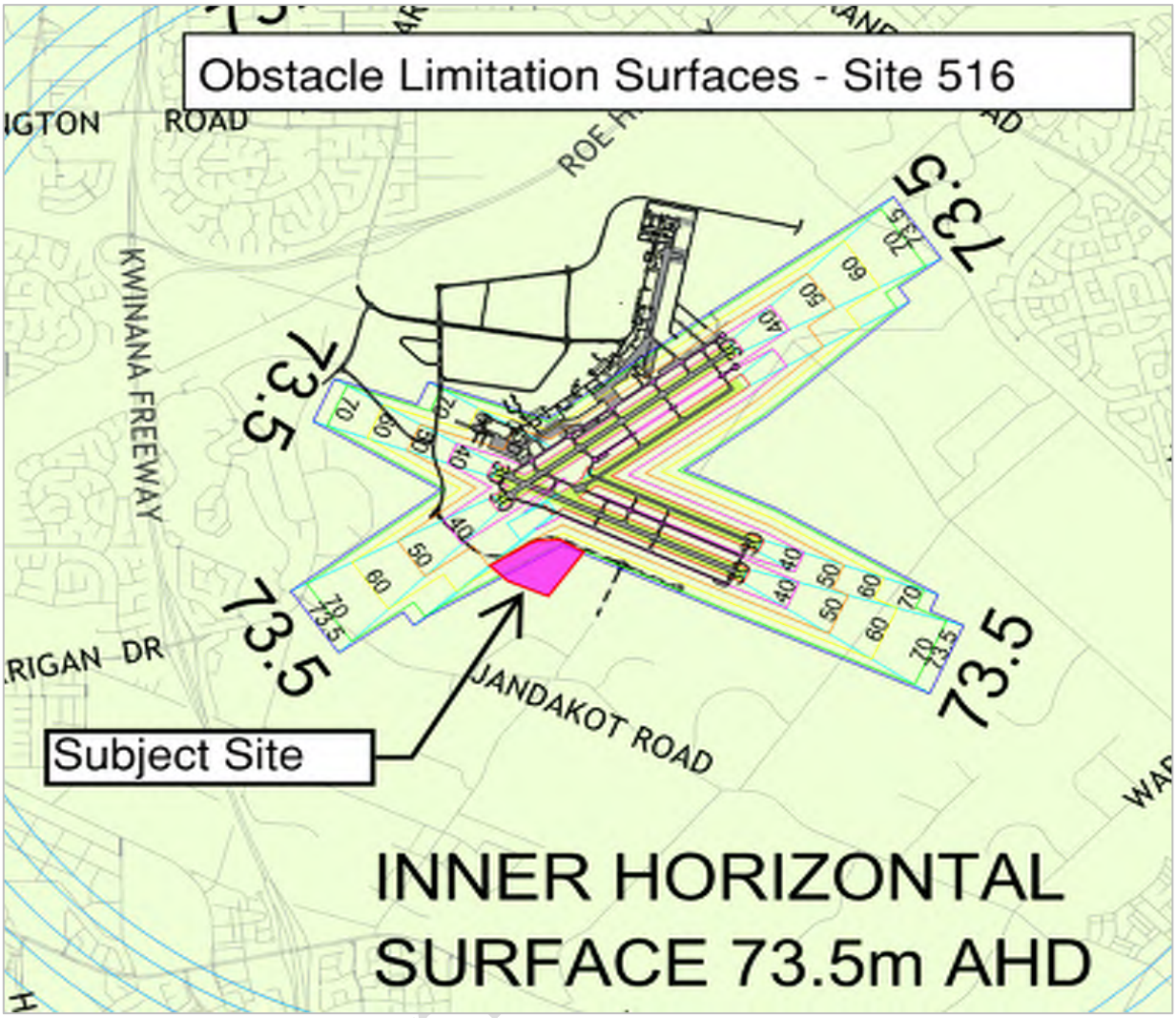
10.5. OBSTACLE LIMITATION SURFACE

The Obstacle Limitation Surface (OLS) is a defined area of airspace designed to provide protection for visual flying (VFR) operations, where the pilot is flying by sight. The OLS identifies the conceptual surfaces which have been determined to be the lower limits of the airspace requirements for aircraft operations in visual flight conditions. It is possible to have some penetration of the OLS provided that approval includes appropriate risk mitigations.

Airspace requirements have been considered for the construction and operation of the proposed development. At the north-west corner, the development site is subject to an OLS height of 55 metres Australian Height Datum (AHD) while the south-east corner is subject to an OLS of 73.5 meters AHD. The maximum height of the proposed development is 13.7m above the established ground level at 30 metres AHD; therefore the maximum overall height of the development is 43.7 metres. AHD The proposed development will not impact the OLS.

Figure 8 identifies the location of the subject site in context of the OLS.

Figure 8 – Obstacle Limitations Surface for Site 516



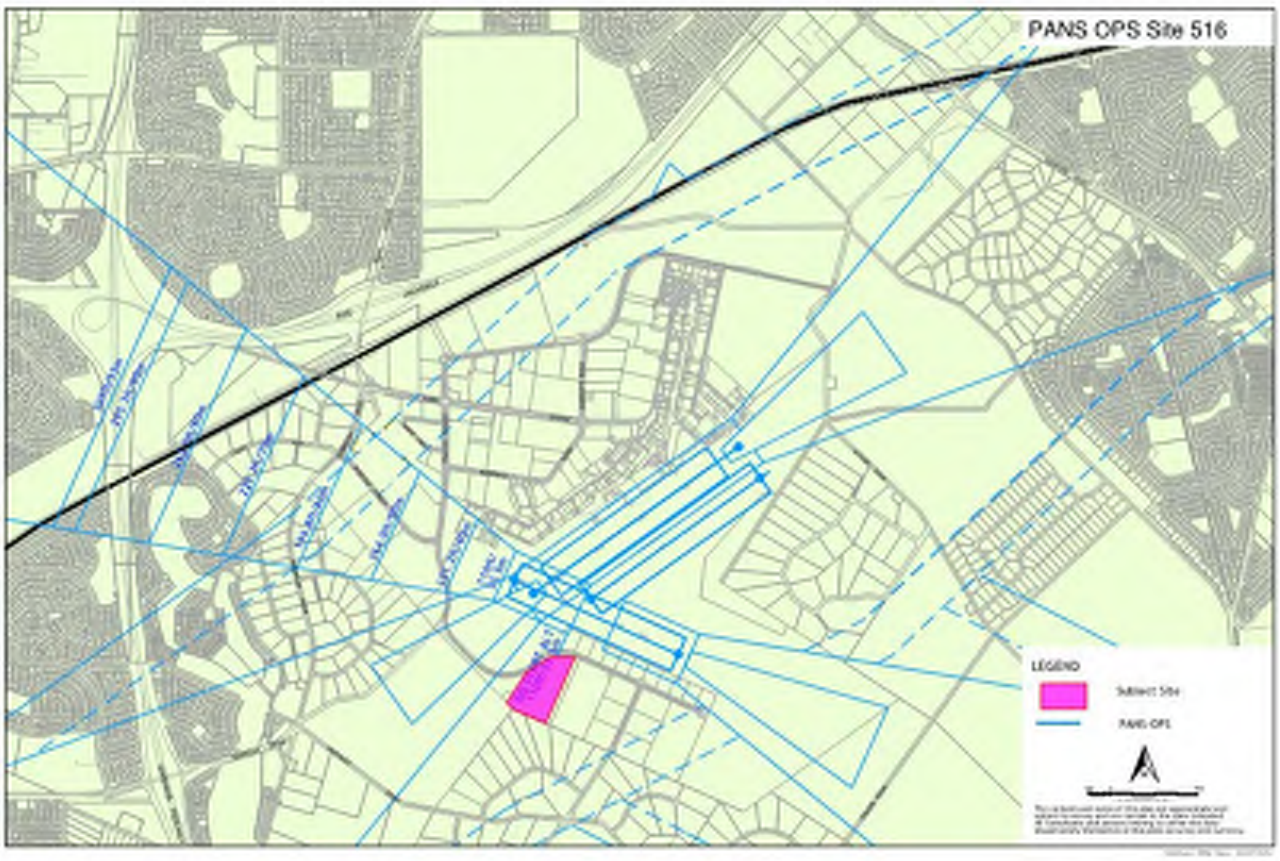
SOURCE: JAH PTY LTD

10.6. PANS-OPS

Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) is a second defined area of airspace, usually positioned above the OLS surface, which protects aircraft operating in instrument flying (IFR) conditions whereby the pilot is relying entirely on the information derived from cockpit navigation instruments. These surfaces are established by instrument procedure designers approved by CASA under Civil Aviation Safety Regulations (CASR) Part 173 to ensure that an aircraft will have a specified minimum clearance above any accountable obstacle. Since the PANS-OPS are a function of the underlying obstacle environment, no penetrations are permitted.

The proposed development will not impact the PANS-OPS surface (refer **Figure 9**).

Figure 9 – Jandakot Airport PANS-OPS Surface Heights



SOURCE: JAH PTY LTD

10.7. CONTROLLED ACTIVITY

The Regulations establish the system for the protection of airspace. Any activities that could result in an intrusion of prescribed airspace are referred to as 'controlled activities' that can only be carried out with approval. Controlled activities include:

- Permanent structures, such as buildings;
- Temporary structures, such as cranes; and
- Any activities causing intrusions into the protected airspace through glare from artificial light or reflected sunlight, air turbulence from stacks or vents, smoke, dust, steam of other gasses or particulate matter.

Cranes and equipment to be used during the construction phase and operation of the Proposed development will be subject to a Controlled Activity assessment by JAH, with any activities that may result in an intrusion of the OLS to be further assessed by Airservices and CASA and approved by the Department of Infrastructure in accordance with the Regulations. As part of the JAH development approval process, JAH will require the construction arrangements to include appropriate equipment and methods to ensure there is no penetration of the PANS-OPS

The Regulations and the National Airports Safeguarding Framework 'Guideline F: Managing the Risk of Intrusions into the Protected Operational Airspace of Airports' acknowledge that intrusions into the operational airspace can result from activities that cause the emission of steam, other gas, dust or other particulate matter, or otherwise cause air turbulence. The development will operate as an office, workshop and depot, and there are no proposed activities that could cause an intrusion into operational airspace.

10.8. EFFECT ON FLIGHT PATHS

Section 91 of the Act requires an MDP to outline if a development could affect flight paths. The 43.7m AHD elevation of the building is below the lowest airspace surface of 55 metres AHD as described in section 10.5 and thus the proposed development will not affect any existing or future approach and departure paths at Jandakot Airport.

10.9. BUILDING GENERATED WINDSHEAR

JAH have provided CASA with requested information for the development and CASA have noted that based on the information provided, a windshear assessment is not required.

10.10. BIRD AND ANIMAL HAZARD MANAGEMENT

Birds and other animals can pose a serious safety risk to aircraft operations. JAH is required to monitor and control the presence of birds and animals on, or in the vicinity, of the airport in accordance with Civil Aviation Safety Authority requirements. JAH has a comprehensive Wildlife Hazard Management Plan that defines the methods applied to control birds and animal hazards on airports, as well as a Feral Animal Management Plan to address overabundant native species.

The National Airports Safeguarding Framework 'Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports' acknowledges that new land uses in the vicinity of an airport can significantly influence the risk of wildlife hazards to aircraft operations, with food garbage disposal noted as being a high risk wildlife attractant. Management of all waste, including food, is addressed through an Operational Environmental Management Plan to prevent wildlife being attracted to the proposed development. In addition, aspects such as roof design and development lighting will take into account their potential wildlife attractant qualities, particularly for birds and bats, and amendments made if warranted.

10.11. NAVIGATION AIDS

Airservices Australia provides a Non-Directional Beacon (NDB) at Jandakot Airport to facilitate location navigation for aircraft arrivals and departures. In addition, a microwave communication link exists between the Jandakot and Perth Air Traffic Control Towers. These navigation and communication links provide for transmission of radio waves that must be protected from structures or obstacles that could cause signal refraction or interference. Information will be provided to Airservices Australia to allow an assessment to be made to ensure that the proposed development does not impact on the navigation and communication aids (including flashing lights of vehicles).

Considering NASF Guideline G, the development is clear of all CNS facilities including the location of proposed new NDB site.

10.12. AIR TRAFFIC CONTROL TOWER LINE OF SIGHT

The Air Traffic Control Tower is required to be sited in a location that enables clear lines of sight, unimpaired by direct or indirect external light sources such as apron lights, car parking lights, surface traffic and street lights and reflective surfaces. The proposed Development will not compromise the ATC line of sight to any of the aircraft movement areas.

10.13. PUBLIC SAFETY ZONES

The purpose of a runway safety zone is to identify an area adjacent to the end of a runway where special considerations might be applied to new developments to minimise the risk of damage by aircraft during landing or take off. Currently, neither the Australian Commonwealth Government nor the Western Australian Government requires the provision of a public safety area or runway protection zone at the ends of runways.

The National Airports Safeguarding Advisory Group (NASAG) is considering additional safeguarding guidelines, such as Public Safety Zones, for inclusion in the National Airports Safeguarding Framework, but these additional guidelines have not yet been released for public comment. A review of existing key requirements for provision of a PSZ was undertaken as it is expected that PSZ will become a defined requirement in the future and, as such, should be taken into consideration for new developments. The

proposed development is located 320m South East of the runway 06R threshold and 420m South East of the runway 06L threshold.

10.14. NOISE GENERATED FROM PROPOSAL

The majority of activities associated with the proposed development occur within the internal areas of the buildings, with the exception of the manoeuvring of vehicles in and around the site. No regular manufacturing or fabrication process is proposed at this depot. The overall noise generated from the site will be minimal and it will not impact on the operations of the Airport.

The layout of the site ensures that all layover, parking, and manoeuvring of vehicles occurs on site. Light vehicles are contained within the parking area to the south of the proposed development and will not create any significant noise impacts. The heavy vehicles are all limited to the eastern and northern sides of the proposed development.

Potential noise impacts will be managed via the CEMP and subsequent OEMP ad detailed in Section 8.2.2. The closest sensitive land use to the subject site is rural-residential in the suburb of Jandakot to the south and west of the site with the nearest dwelling being approximately 175 metres from the edge of the site.

The rural-residential dwellings have a large setback creating a vegetation strip approximately 150m between the boundary of the Airport and the nearest residential dwelling. A 2.4 metre high screen wall is proposed on the southern boundary of the site, on top of the existing batter with landscaping on the batter to provide additional separation and screening to the rural-residential land. Regular truck traffic has been moved further north as far as practicably possible (taking building footprints and external storage areas into account), which will further ameliorate potential noise impacts.

11. CONSULTATION

In accordance with the Act, the Draft MDP was subject to a period of public comment for 20 business days. A schedule of submissions, including a summary of the comments and the manner in which they have been addressed, were included with the Draft MDP submitted to the Minister.

Pursuant to section 92 of the Act, the following were notified in writing of the intention to submit the Draft MDP to the Minister:

- Minister for Transport; Planning; Lands (State)
- Department of Planning, Lands and Heritage
- City of Cockburn
- City of Melville
- City of Canning

A schedule of submissions, including a summary of the comments and the manner in which they have been addressed, was included with the draft MDP submitted to the Minister for approval.

12. APPROVALS

12.1. APPROVAL SOUGHT

Western Power is seeking approval from the Minister for Infrastructure and Transport, to construct a depot facility at Jandakot Airport for a cost of approximately $38 million, exceeding the $20 million threshold for the preparation of a MDP.

12.2. APPROVAL PROCESS

Development within Jandakot Airport is a two part process; the Minister for Infrastructure and Transport considers applications and determines MDPs, whilst the appointed Airport Building Controller is the approving authority for the issue of Building Permits. Jandakot Airport and the Department of Regional Infrastructure and Development provide the equivalent functions of a 'Local Government' authority for all development on the Airport land. The process is designed to ensure Federal Government oversight of major development on federally leased airport lands.

The MDP is subject to a referral process and takes into account comments from the public, including Local and State planning authorities, in addition to the CASA and Airservices Australia. The Commonwealth Minister for Infrastructure and Transport is responsible for making decisions in respect of the MDP.

JAH would then provide consent to the proposed development through a Development Application assessed against the Development Guidelines established for the Jandakot Airport.

13. CONCLUSION

This MDP has been prepared to support the proposed Western Power Depot which is anticipated to be the largest Western Power Depot in Western Australia. Western Power currently has multiple depots across metropolitan Perth and is seeking to consolidate activities in a northern metropolitan and southern metropolitan depot.

The proposed Western Power Depot has been assessed against all the requirements of the Act and the Master Plan and demonstrated clear compliance with the statutory requirements. The proposed Depot represents a significant investment in the locality that will provide a regional economic stimulus by supporting over 750 employees and creating much needed indirect employment during construction.

Western Power's vision and objectives for this development are well aligned with the continuing development of the mixed business precinct providing additional economic benefits from non-aviation land within Jandakot Airport.

APPENDIX A DEVELOPMENT PLANS

SITE PLAN
SCALE: 1 : 1000

SITE CRITERIA

1.	**Site Area**		100,094m²
2.	**Landscaping**		
	a.	Soft Landscaping	3,824m²
	b.	Hard Landscaping (inc. bike store)	2,393m²
	c.	Bike Storage Awning	(50m²) already counted above)
		Total	6,217m² (6.2% of site area)
3.	**Covered Floor Area**		
	a.	Office - 2 Levels	2,000m² NLA - GLA will be larger than NLA shown (4000m² total over 2 x 2000m² floor plates)
	b.	HV Testing & Labs	2,550m²
	c.	Operations Workshop	1,200m²
	d.	Fleet Workshop	3,350m²
	e.	Fleet Office & Amenities	450m²
	f.	Oil Waste Store	1,200m²
	g.	CEVA Drivethrough	5,000m²
	h.	CEVA Store & Env. Shed	2,000m²
	i.	Covered EWP HV Testing Area	50m²
	j.	Covered Battery Storage	50m²
	k.	Covered Tyre Storage	180m²
	l.	Covered Washdown	50m²
	m.	Covered Yard Storage	1250m²
	n.	Covered Pole Assembly	240m²
	o.	Covered Heavy Fleet (Large) Parking Area	6,900m²
	p.	Generator Area	110m²
		Total	28,580m²
4.	**Uncovered Floor Area**		
	a.	Environmental Waste	200m²
	b.	Refuel	72m²
	c.	Uncovered Trailer Parking	2,130m²
	d.	Uncovered Pole Storage	1,450m²
	e.	EWP Commissioning Area	176m²
	f.	On Grade Storage Area	1,450m²
	g.	Heavy Fleet (Small) Parking Area	2,016m²
	h.	Light Fleet Parking Area	4,600m²
		Total	12,094m²
5.	**Light Duty Paving**		
	a.	Uncovered Light Duty Ashphalt Parking	11,229m²
6.	**Balance of Concrete Area**		
	a.	Uncovered Balance of Concrete Paving	47,056m²
7.	**Car Parking**		
	a.	Staff & Visitor parking	426 car bays
	b.	Heavy Fleet bays	138 bays
	c.	Small Fleet bays	56 bays
	d.	Light Fleet bays	184 bays
8.	**Paving Beyond Boundary**		
	a.	Truck Entry Crossover	132m²
	b.	Visitor & Staff Entry Crossover (bitumen)	79m²
	c.	Truck Exit Road & Crossover	1,046m²

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

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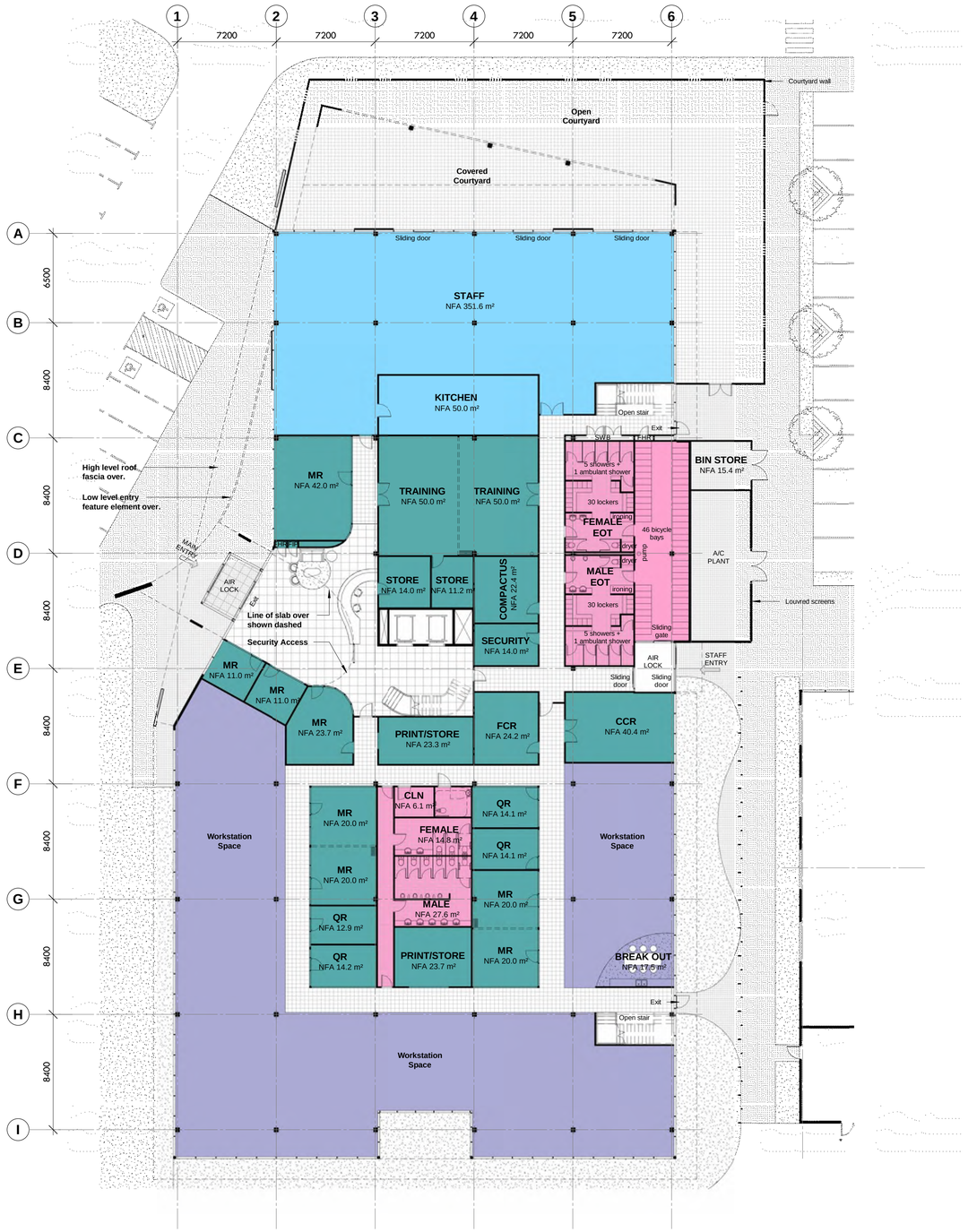

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OFFICE GROUND FLOOR PLAN

SCALE: 1 : 200

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OFFICE FIRST FLOOR PLAN

SCALE: 1 : 200

PROPOSED DEVELOPMENT

LOCATION:PRECINCT 6, JANDAKOT AIRPORT

FOR:JANDAKOT AIRPORT HOLDINGS

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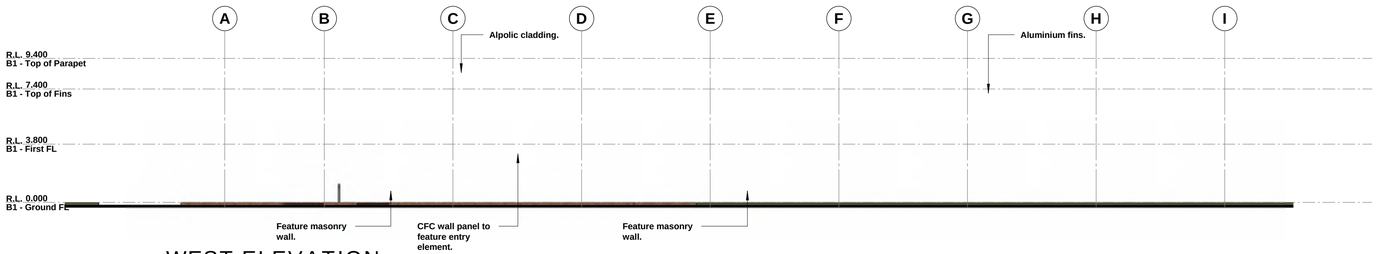

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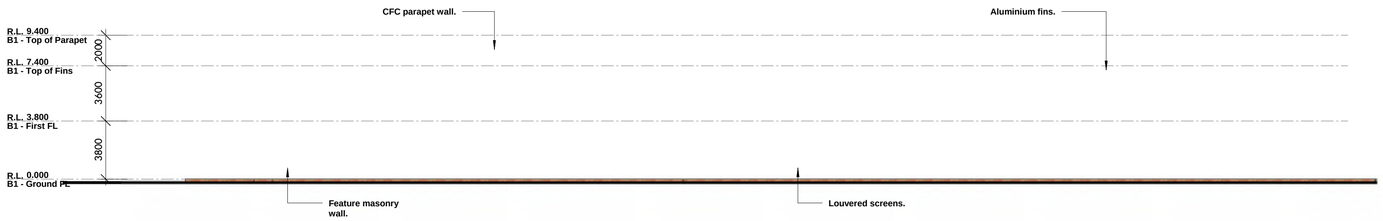

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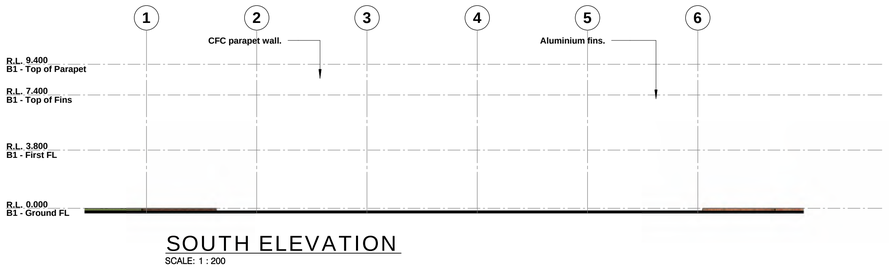

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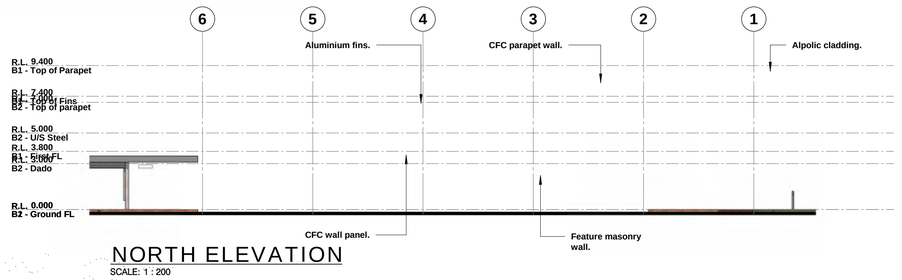

NORTH ELEVATION

SCALE: 1 : 200

3D View 1

SCALE:

3D View 2

SCALE:

PROPOSED DEVELOPMENT

LOCATION:PRECINCT 6, JANDAKOT AIRPORT

FOR:JANDAKOT AIRPORT HOLDINGS

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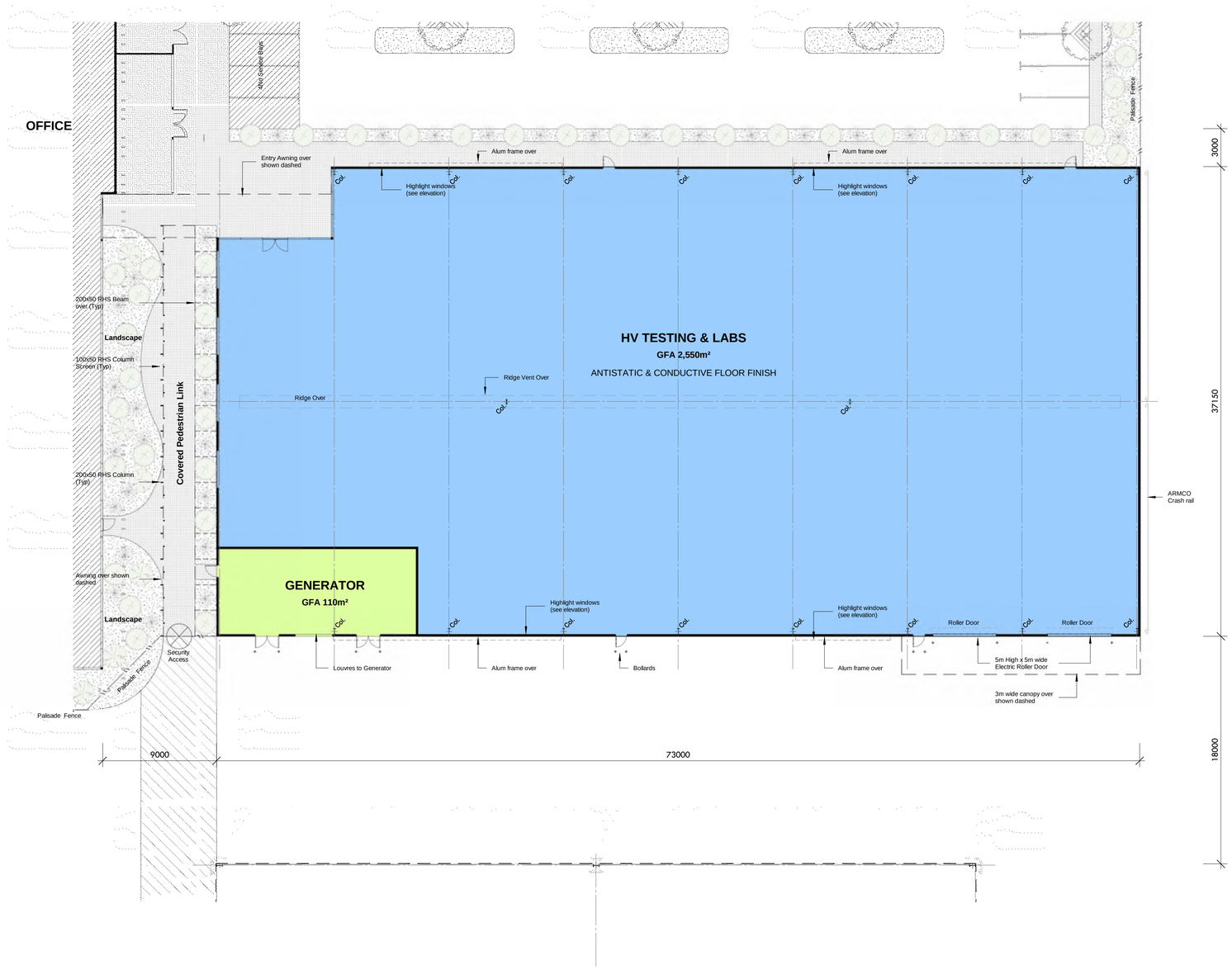

N

GROUND FLOOR PLAN - HV TESTING & LABS

SCALE: 1 : 200

BUILDING 2

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

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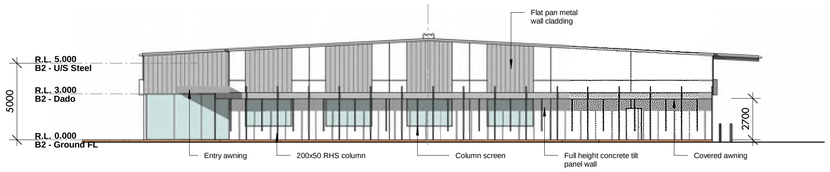

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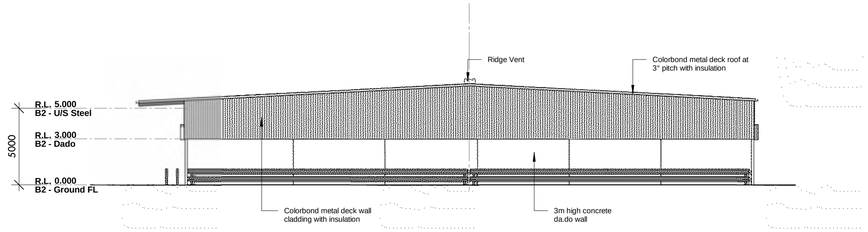

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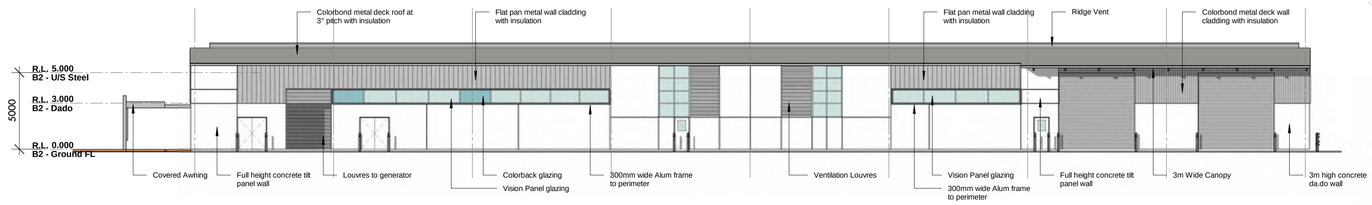

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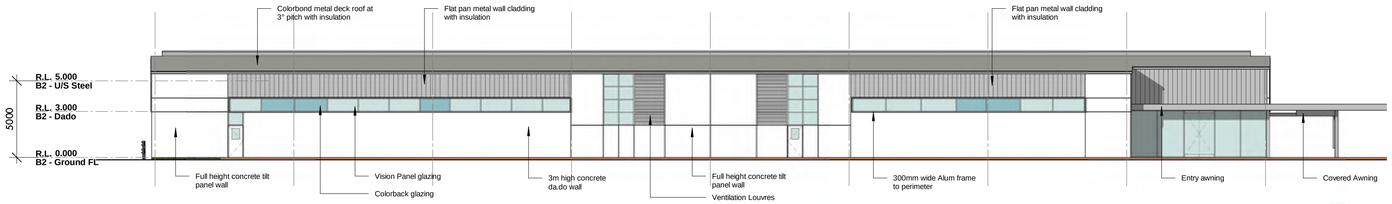

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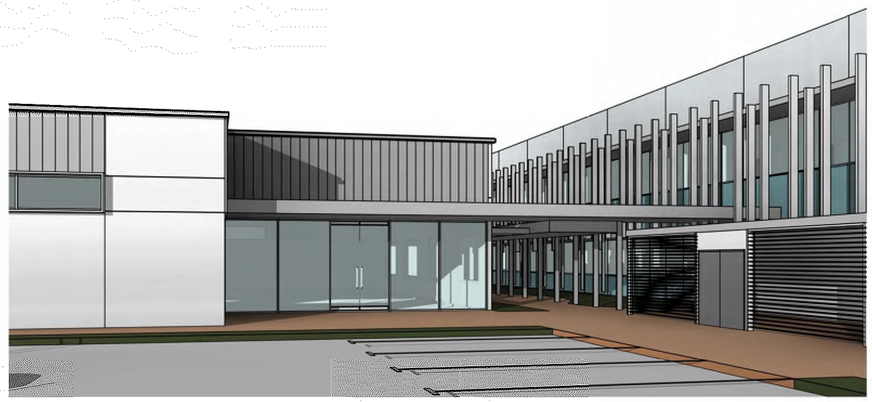

BUILDING 2

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

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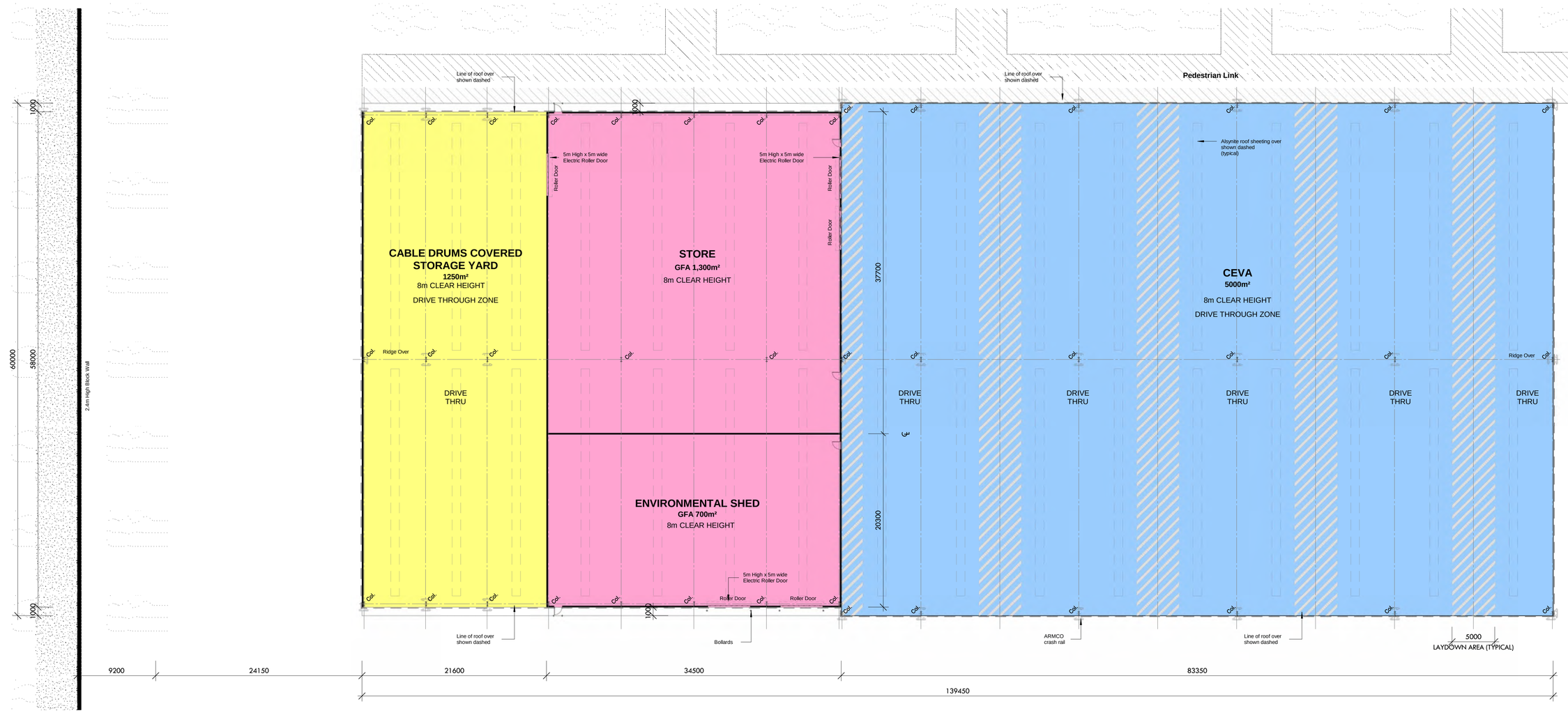

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GROUND FLOOR PLAN - CEVA, STORE & SHED

SCALE:1 : 250

BUILDING 3

PROPOSED DEVELOPMENT

LOCATION:PRECINCT 6, JANDAKOT AIRPORT

FOR:JANDAKOT AIRPORT HOLDINGS

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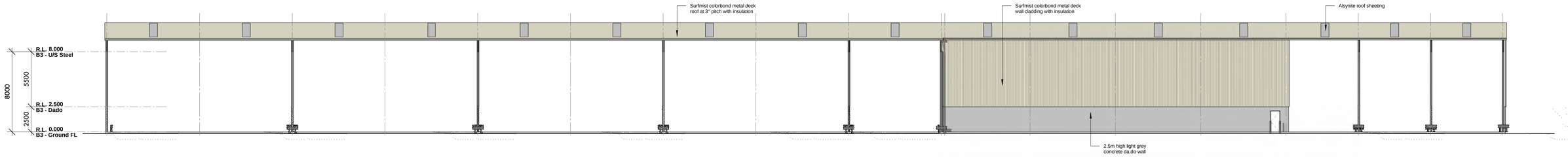

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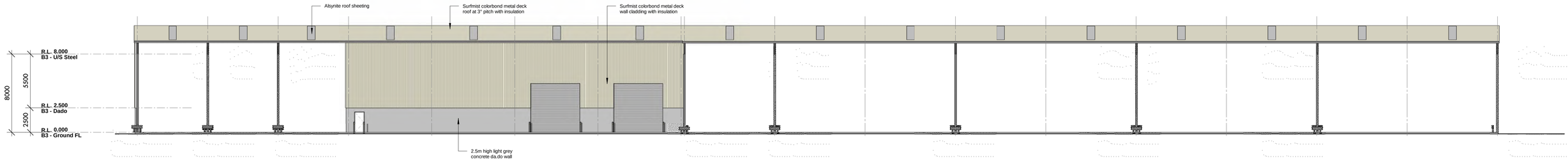

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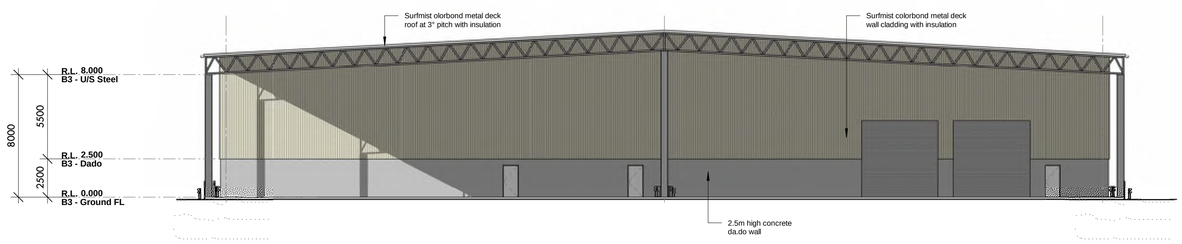

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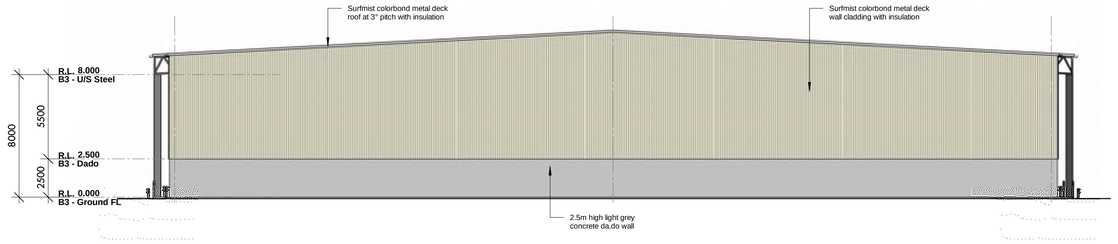

SOUTH ELEVATION

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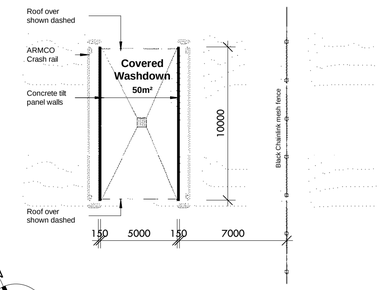

COVERED WASHDOWN LAYOUT

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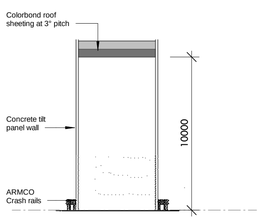

WASHDOWN - FRONT ELEVATION

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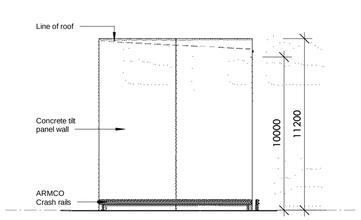

WASHDOWN - SIDE ELEVATION

SCALE: 1 : 200

BUILDING 3 & BUILDING 5 WASHDOWN

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

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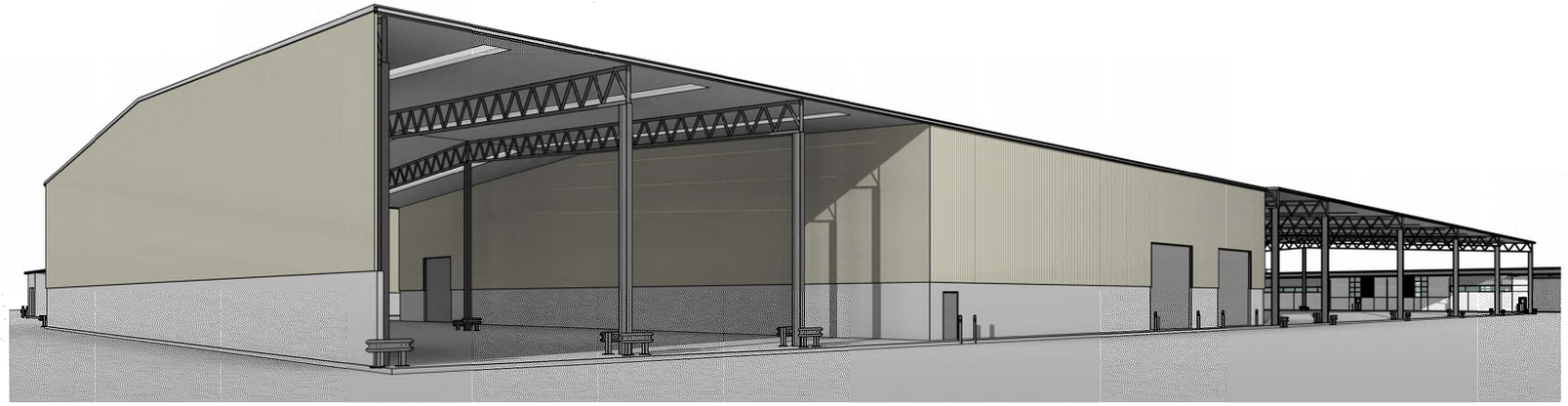

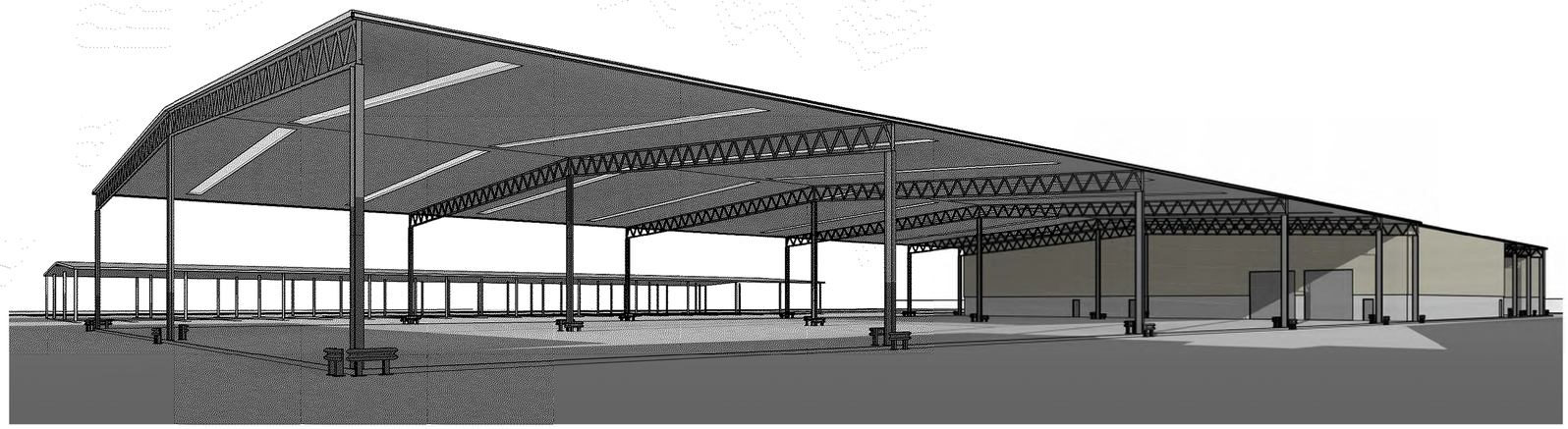

BUILDING 3

PROPOSED DEVELOPMENT
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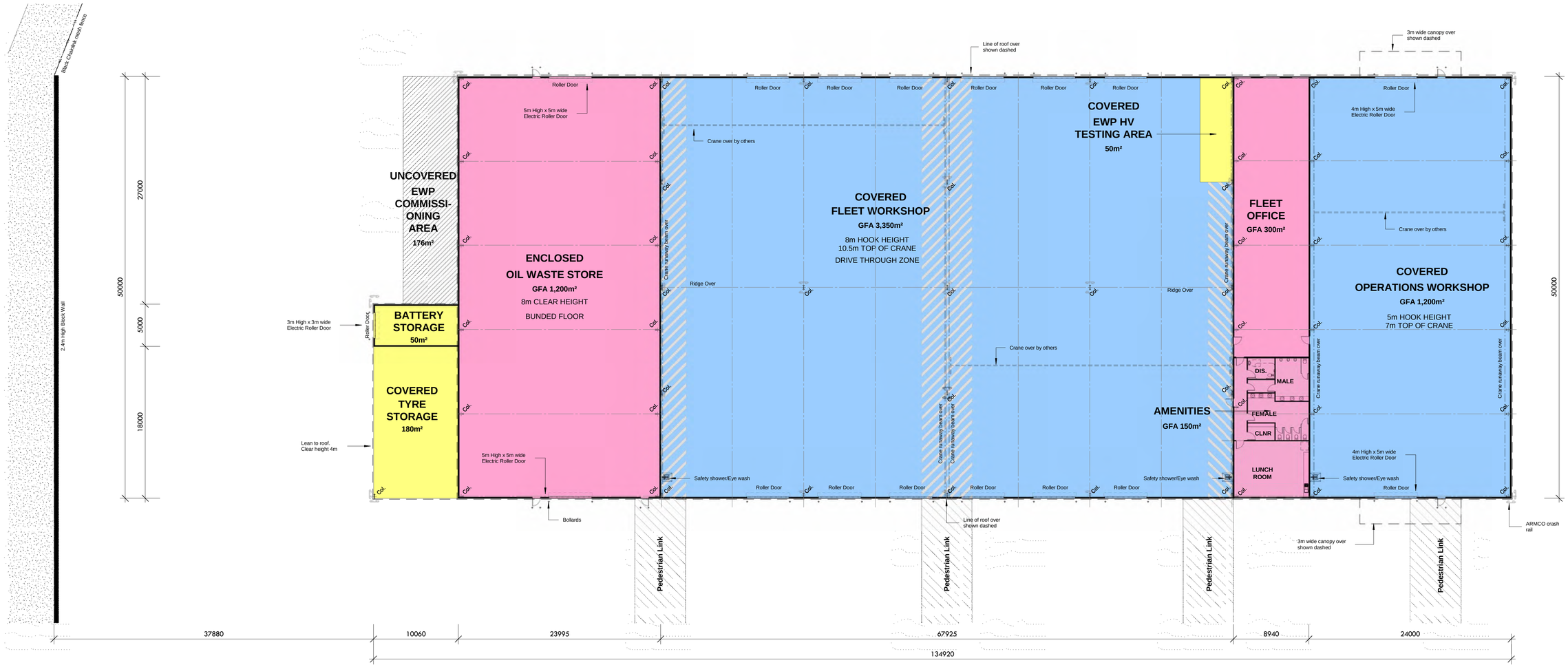

N

GROUND FLOOR PLAN - WORKSHOP

SCALE: 1 : 250

BUILDING 4

PROPOSED DEVELOPMENT

LOCATION:PRECINCT 6, JANDAKOT AIRPORT

FOR:JANDAKOT AIRPORT HOLDINGS

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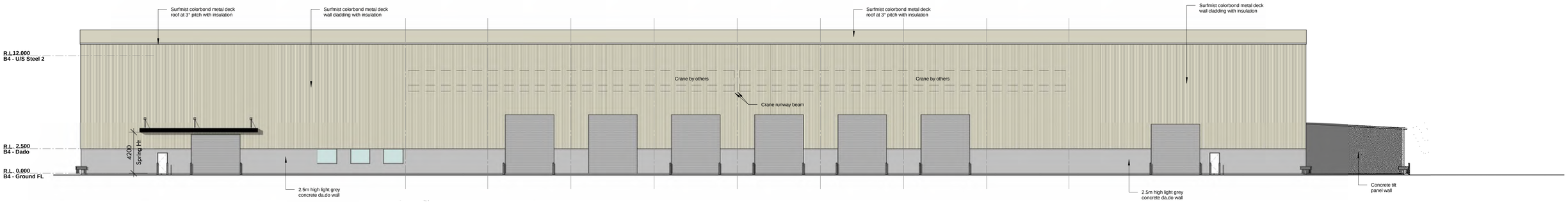

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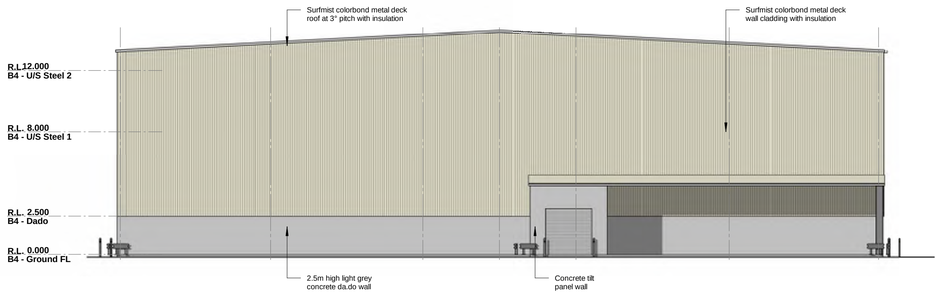

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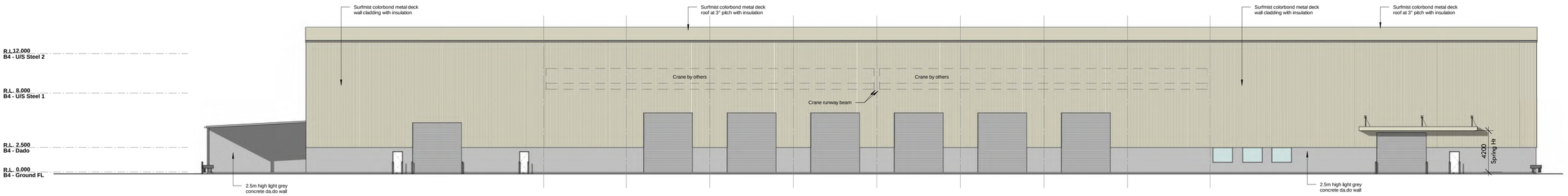

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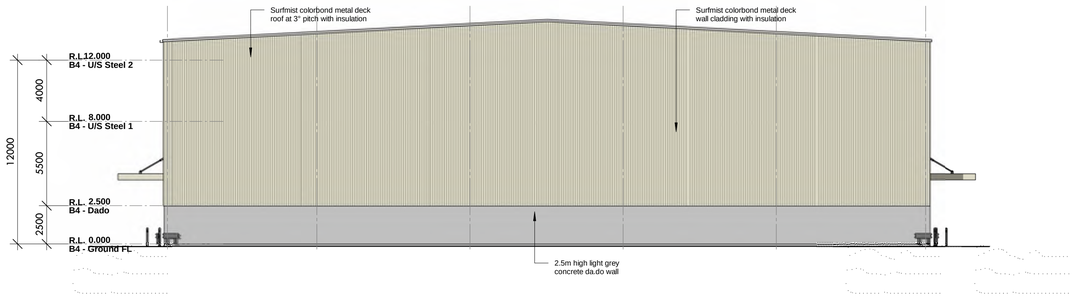

NORTH ELEVATION

SCALE: 1 : 200

BUILDING 4

PROPOSED DEVELOPMENT

LOCATION:PRECINCT 6, JANDAKOT AIRPORT

FOR:JANDAKOT AIRPORT HOLDINGS

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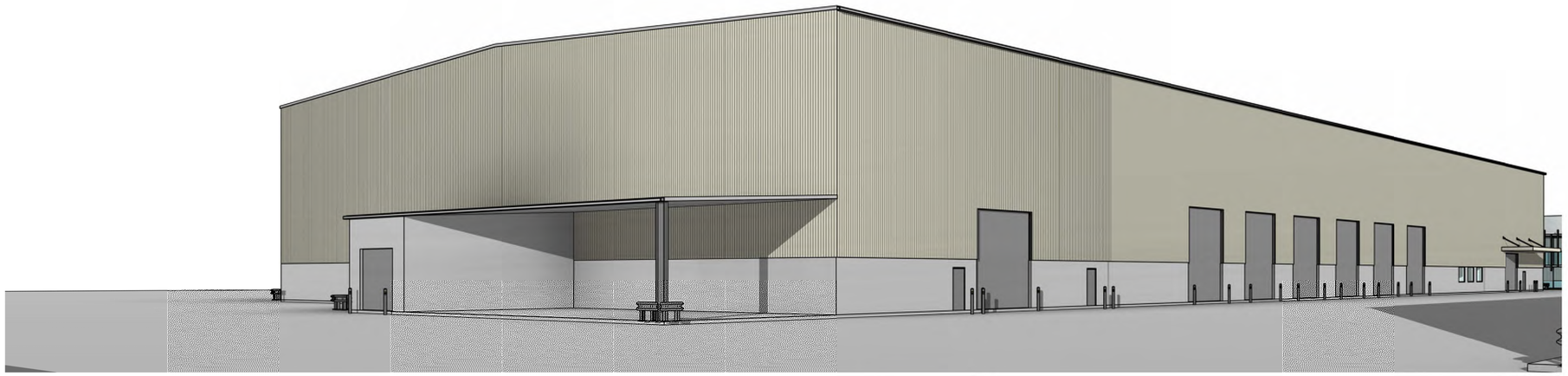

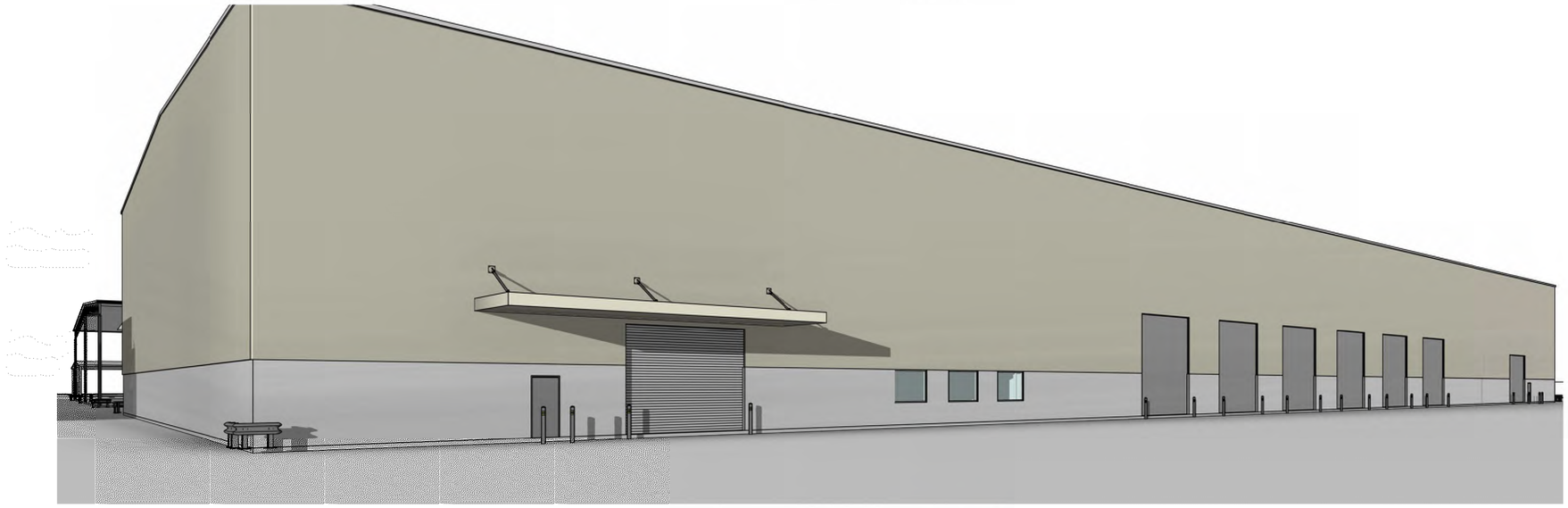

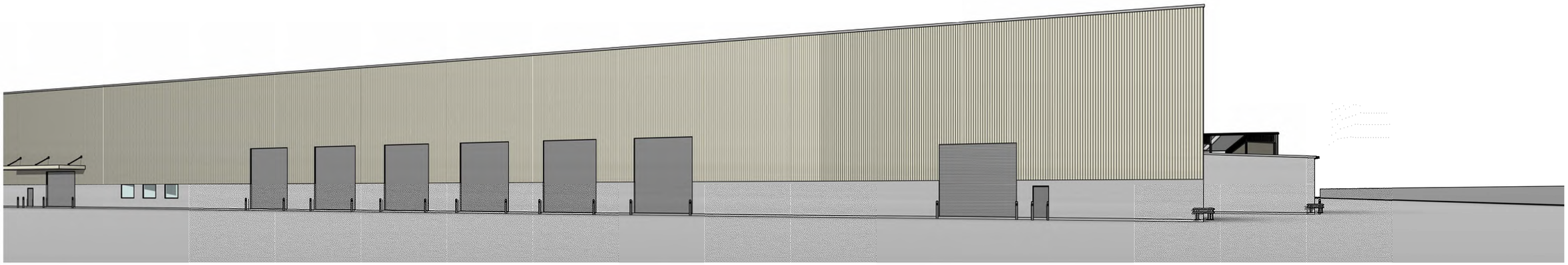

BUILDING 4

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

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APPENDIX B TRANSPORT REPORT

Western Power Development - Precinct 6, Jandakot Airport

Transport Report for Major Development Plan

PREPARED FOR:
Jandakot Airport Holdings Pty Ltd

July 2017

Document history and status

Author	Revision	Approved by	Date approved	Revision type
R White	r01	B Bordbar	25/07/2017	Draft
R White	r01a	B Bordbar	26/07/2017	Final

File name: t17194-rw-r01a.docx

Author: R White

Project manager: B Bordbar

Client: Jandakot Airport Holdings Pty Ltd

Project: Western Power Development - Precinct 6, Jandakot Airport

Document revision: r01a

Project number: t174.194

TABLE OF CONTENTS

REPORT FIGURES

REPORT TABLES

1.0 Introduction

This Transport Report has been prepared by Transcore on behalf of Jandakot Airport Holdings Pty Ltd with regard to the proposed Western Power depot development. This depot is proposed to be located within Precinct 6 access road in the southern portion of Jandakot Airport.

For the purpose of this report, the subject site is also referred to as 'Site 516'.

Jandakot Airport is Commonwealth land and for certain type of developments including the proposed Western Power development the Major Development Plan (MDP) process will need to be followed. The MDP will need to cover and address specific information as set out in the *Airports Act 1996*, including:

91(1)(ga) the likely effect of the proposed developments that are set out in the major development plan, or the draft of the major development plan, on:

(i) traffic flows at the airport and surrounding the airport

This Transport Report addresses the requirement of 91(1)(ga)(i) of the Airports Act 1996.

2.0 Development Proposal

The subject of this report is the proposed Western Power development of a new southern metropolitan depot which is intended to consolidate the activities currently undertaken at a number of existing smaller depots across the Perth metropolitan area. There will also be a new north metropolitan depot at another site north of the Swan River servicing the northern half of the metropolitan area.

The proposed development will include office and workshop facilities for an estimated 750 staff comprising administrative and field operations personnel. Western Power has advised that 40% of this number are administrative staff and 60% operations staff.

Western Power indicated that the proposed development is to provide for the following facilities:

1. Administrative offices (including amenities),
2. Warehouse, workshops, laboratories and electronic clean room areas
3. Vehicular maintenance facilities (Heavy Fleet)
4. Supplies stores / archives
5. Covered parking areas for all Heavy Fleet vehicles
6. Secure parking for operational Light Fleet
7. Staff and visitor parking

The proposed development site plan is shown in **Appendix A**. The proposed site is approximately 10 hectares in area. The site plan indicates the development will include over 28,500m^2 of covered floor area (including 4,000m^2 of office space in a two storey office building, workshops, storage and heavy fleet parking areas), over 12,000m^2 of uncovered floor area and extensive parking areas and other hardstand areas.

The proposed parking provision includes a staff and visitor car park for 426 cars and parking bays for 138 heavy fleet vehicles (4m x 12.5m bays), 56 small fleet vehicles (3m x 6m bays) and 184 light fleet vehicles (2.6m x 5.5m bays).

The site plan shows that the site will be fenced for security with sliding access gates for vehicle access (one driveway for the car park and two driveways for fleet vehicles (one entry only and one exit only). All three driveways will connect to the new Precinct 6 access road. Additional boom gate control is shown for the staff parking area separate from the visitor parking area adjacent to the two-storey office building at the front of the site.

Secure bicycle parking will be provided for 40 bicycles and separate male and female end-of-trip facilities are included.

Western Power has advised that all staff generally arrive between 6.30am and 8.00am and depart between 3.00 and 5.00pm.

The vehicle fleet operated by Western Power is generally up to 12.5m rigid vehicles but the site is required to be designed generally to accommodate turn movements by 19m semi-trailers and to allow for through movement by 27.5m B-doubles which may visit the site less frequently, as well. The site plan at **Appendix A** shows turn paths for 27.5m B-doubles throughout the site, demonstrating that that size of vehicle is easily accommodated by the proposed site layout.

The development proposal does not propose any modifications to the existing Jandakot Airport Mixed Business Precinct road network.

3.0 Existing Situation

The subject site is situated within Precinct 6 of the Jandakot Airport Mixed Business Precinct (JAMBP). It is located on the southern side of the new Precinct 6 access road that is currently nearing completion, as shown in **Figure 1**.

Figure 1 : Site Location

This new access road connects to Pilatus Street with the intersection constructed as a roundabout, as shown in **Figure 2**. At the time of writing this report the new access road and the adjacent section of Pilatus Street extension are nearing completion but not yet open to traffic.

Figure 2 : Precinct 6 access road (June 2017)

The access to the JAMBP from the district level road network is currently provided through two major road links. Karel Avenue provides connection to Roe Highway (to the north), while Berrigan Drive provides connection to Kwinana Freeway (to the southwest) and Jandakot Road (to the southeast). Pilatus Street provides an important spine road link through the JAMBP area and will become the main southern route connecting to Jandakot Road and Berrigan Drive.

3.1 Existing Road Network

The new **Precinct 6 access road** is being constructed to the same standard as **Spartan Street**, which is a single-carriageway, two-lane, boulevard-style road with a 3m wide red asphalt median with raised traffic islands in some sections. It will have 1.5m on-road cycling lanes and a 2.5m shared path has been constructed along the northern side of the road.

Pilatus Street south of Karel Avenue, transitions from a four-lane dual carriageway road into a single carriageway, two-lane road south of Marriott Road, widening on its approach to Spartan Street to accommodate a right-turn pocket. It entails 1.5m on-road cycling lanes and a pedestrian path along the western side of the road and with crossing points at each intersection. The southern extension of Pilatus Street from Spartan Street to Berrigan Drive is constructed as a single-carriageway, two-lane road with potential to be upgraded to dual carriageway in future if required. The short, southernmost section of Pilatus Street north of Jandakot Road to Berrigan Drive has already been constructed to dual carriageway standard.

Karel Avenue is the main access road into JAMBP. It runs east-west within Jandakot Airport then turns northward and connects to Roe Highway, South Street and Leach Highway. Karel Avenue, south of Roe Highway, entails variable cross sections, changing from a two-lane divided, boulevard-style road (west of Berrigan Drive and east of Mariott Road) to a four-lane, dual-carriageway road with wide median.

Dedicated on-road cycling lanes are also provided on all sections of the road. A 2.5m wide shared path is in place along the southern side (east of Berrigan Drive) while a 3.0m wide shared path is in place along the western side of Karel Avenue north of Berrigan Drive.

The east-west section of Karel Avenue is classified as a *District Distributor B* road in the Main Roads WA *Functional Road Hierarchy* and has a posted speed limit of 70km/h. The north-south section is classified as a *District Distributor A* road and has a 60km/h speed limit from Berrigan Drive to Roe Highway.

Berrigan Drive is constructed as a single carriageway, two-lane road (one 3.5m traffic lane in each direction with 1.5m sealed shoulders) from Karel Avenue south to Pilatus Street, then a dual carriageway road west of Jandakot Road.

Berrigan Drive is classified as a *District Distributor A* road and has a posted speed limit of 70km/h in this area. It forms an interchange with Kwinana Freeway about 2.5km southwest of Karel Avenue and provides a district distributor road link between Kwinana Freeway and Roe Highway.

Existing average weekday traffic counts on Karel Avenue, Berrigan Drive and Jandakot Road have been obtained from counts undertaken for Jandakot Airport in September 2015 or more recent counts from City of Cockburn and Main Roads WA websites, where available. Existing traffic volumes are summarised in **Table 1**.

Table 1: Existing traffic volumes

Road	Location	Average weekday traffic	Date
Karel Ave	E of Berrigan Dr	13,045 vpd	May 2016
Karel Ave	W of Berrigan Dr	20,093 vpd	Sep 2015
Berrigan Dr	S of Karel Ave	14,517 vpd	Sep 2015
Berrigan Dr	W of Jandakot Rd	18,032 vpd	Sep 2015
Jandakot Rd	E of Berrigan Dr	14,862 vpd	Mar 2017

3.2 Existing Public Transport Opportunities

There are limited public transport services available at the subject locality at present. The nearest bus route (bus route 515 operating between Murdoch Station and Berrigan Drive/Turnbury Park Drive) runs on Berrigan Drive west of JAMBP. Route 515 also deviates down Karel Avenue to Compass Road/Eagle Drive several times a day. The local bus service map is illustrated in **Figure 3**[1].

[1] *Note: route No. 515 deviation to Compass Road/Eagle Drive (Jandakot Airport) is not shown in the Transperth bus service map*

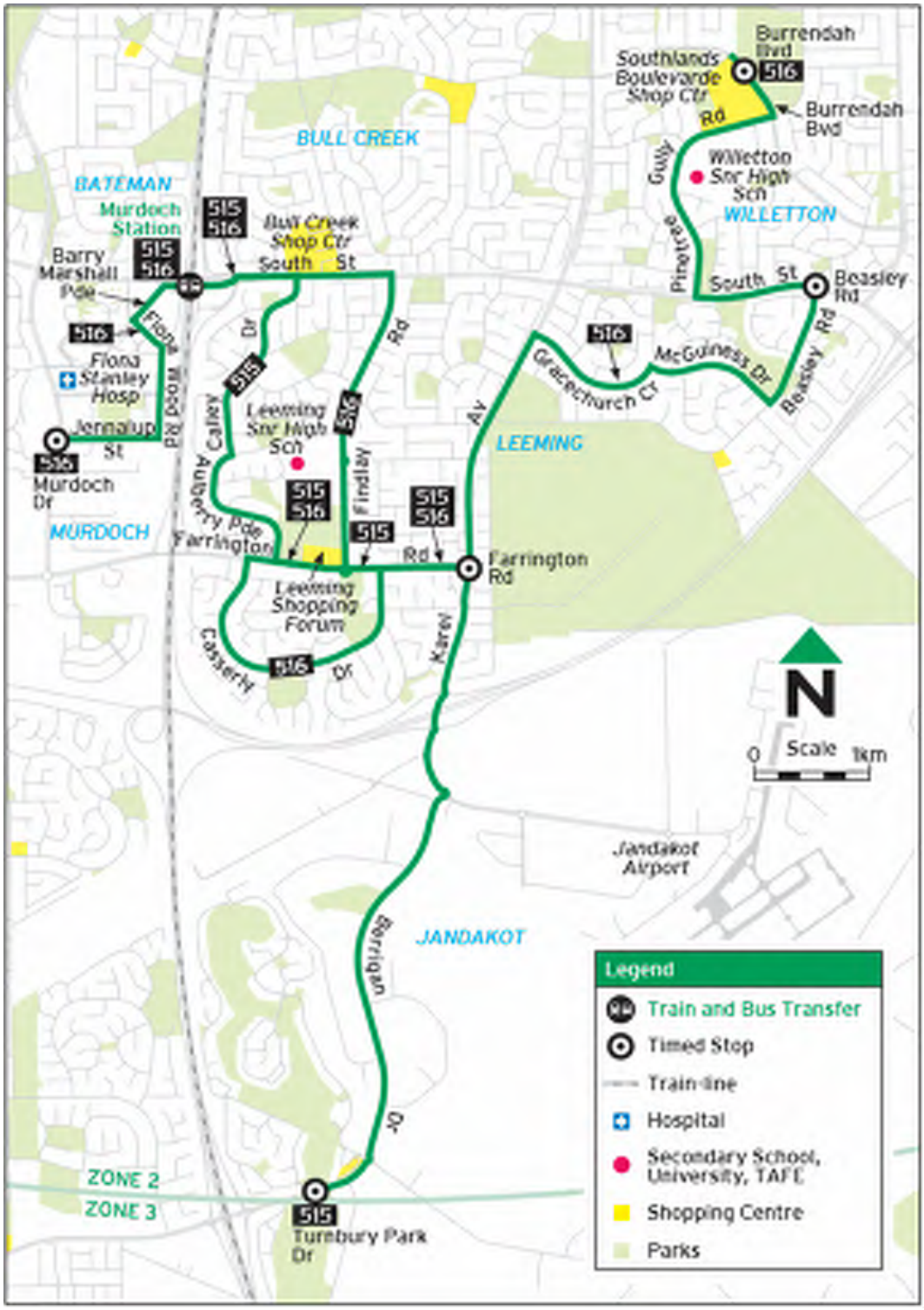

Figure 3 : Existing Bus Routes

4.0 Future Situation

Pilatus Street is currently under construction southwards from the Jandakot Airport boundary to Berrigan Drive as planned in the Jandakot Airport Master Plan 2014. A new signalised intersection at Berrigan Drive / Jandakot Road / Pilatus Street / Dean Road intersection became operational around May 2017. This included the realignment of Berrigan Drive to connect at a new T-intersection on the new Pilatus Street alignment.

It is understood that the State Government has set aside funds to upgrade the section of Karel Avenue between Roe Highway and Berrigan Drive to dual carriageway standard (two lanes each way), in accordance with the long term requirements for the Jandakot Airport Master Plan 2014, with this work to be tendered by the end of this year for construction in 2018.

A future road (the eastern link) connecting Jandakot Airport with Ranford Road is proposed in the Jandakot Airport Master Plan 2014.

The Jandakot Airport Master Plan 2014 provides a plan illustrating the road hierarchy and future road links mentioned above (see **Appendix B**).

5.0 Traffic Assessment

5.1 Traffic Generation and Distribution

The traffic that will be generated by the proposed Western Power development will primarily be related to arrival and departure of staff and fleet vehicles travelling to and from the site each day. Visitors and delivery vehicles will only represent a small proportion of traffic flows generated by the proposed development.

Western Power has advised that the workforce operating at or from this site is estimated to be up to 750 staff. 40% of this number are administrative staff and 60% operations staff. Western Power has advised that all staff generally arrive between 6.30am and 8.00am and depart between 3.00 and 5.00pm.

Based on advice from Western Power the following assumptions are incorporated in the traffic generation calculations:

- Typically 10% to 20% of staff are absent on leave or due to illness on a typical day. (10% is assumed typical for the purpose of this analysis.)
- Western Power will provide bus transport from Murdoch Station to the site for employees. (This could be up to 20% of staff but 10% is assumed for this analysis.)
- Some staff will ride share or cycle to work. (10% is assumed for the purpose of this analysis.)
- Typically 20% of the field vehicles are not used on any given day.

Based on these assumptions the staff movements will generate traffic flows of approximately 1,050 vehicles per day (vpd) (525 in / 525 out). This will be a combination of cars which park in the staff car park and light fleet vehicles which park in the depot area.

Visitor traffic is nominally estimated at three times the number of visitor parking bays (59 visitor spaces shown on the site plan at **Appendix A**) which indicates approximately 350vpd (175 in / 175 out).

Fleet vehicles traffic generation assumed 80% of the fleet vehicles travel from and to the site each day. As noted in section 2.0 parking is provided for 138 heavy fleet vehicles), 56 small fleet vehicles and 184 light fleet vehicles. Hence it is estimated the fleet vehicles traffic generation would be approximately 600vpd (300 in / 300 out. This would include approximately 220 heavy vehicle movements per day (110 in / 110 out).

The total traffic generation of the proposed Western Power development is therefore estimated at approximately 2,000vpd (1,000 in / 1,000 out) with approximately 11% heavy vehicle movements.

Traffic distribution to and from the subject site is assumed to be distributed in a similar pattern to the overall Jandakot Airport traffic distribution, based on projected future traffic patterns shown in the Jandakot Airport Master Plan 2014, as follows:

- 52% to/from Karel Avenue north (to Roe Hwy, Kwinana Fwy north, etc.);
- 25% to/from Berrigan Drive southwest (to Kwinana Freeway south, etc.);
- 11% to/from the future east link to Ranford Road;
- 8% to/from Jandakot Road; and,
- 4% internal trips within the Jandakot Airport Master Plan area.

5.2 Future Traffic Flows

Future traffic flows generated by full development of the Jandakot Airport Master Plan are shown in Figure 6.2 of the Jandakot Airport Master Plan 2014 report. The anticipated new traffic movements generated by the proposed Western Power development have been assigned on the road network and are shown on a copy of that traffic flows diagram in **Figure 4**. The Western Power traffic flows shown are part of the future total Jandakot Airport traffic generation, not additional to it. This shows that the proposed Western Power development will generate approximately 2,000vpd of the future total 5,800vpd on the Precinct 6 access road.

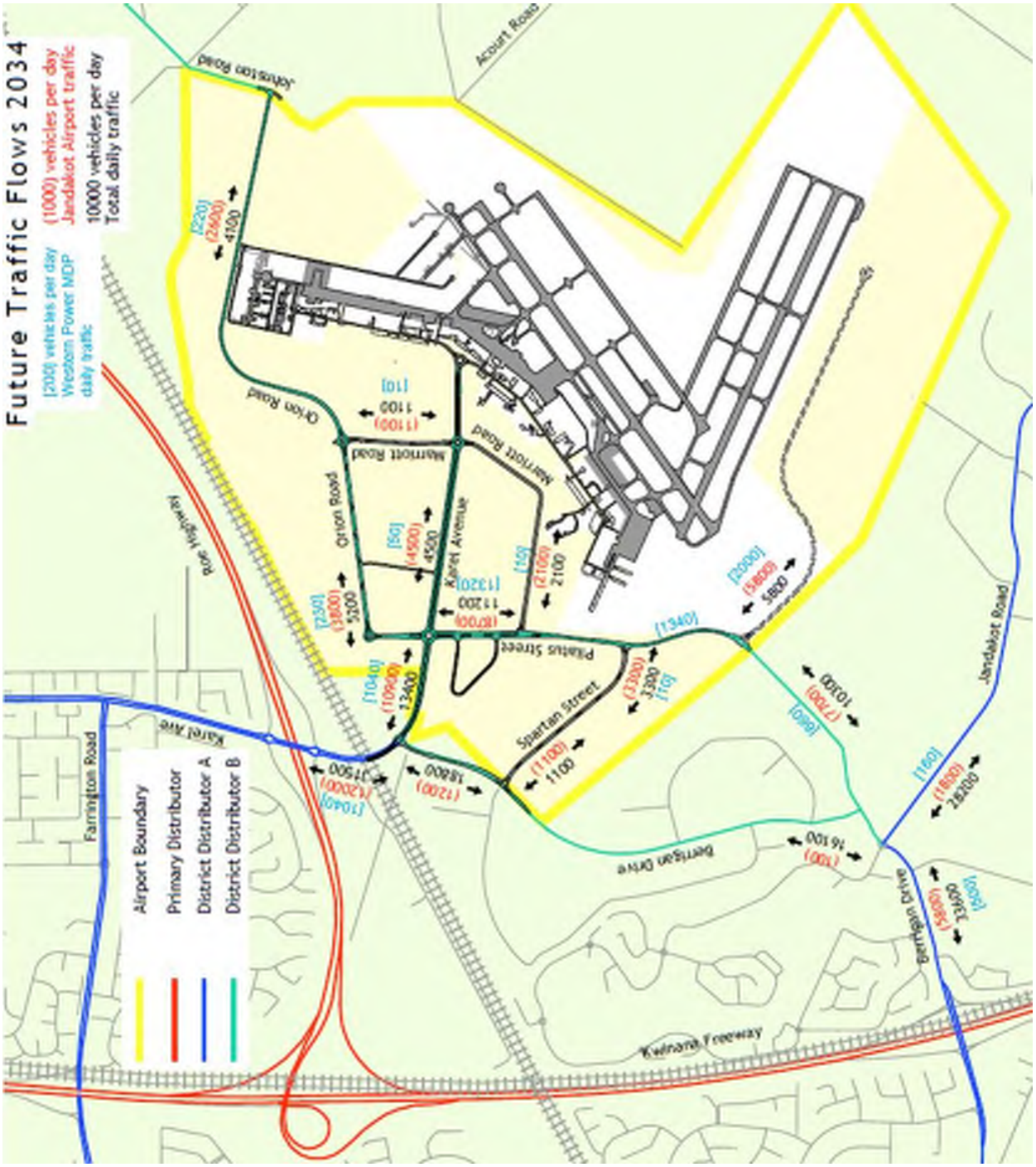

Figure 4. Future Traffic Flows

5.3 Traffic Impact on Road Network

The impact of the development traffic on major access routes surrounding JAMBP is expected to be moderate and generally within the capacity of surrounding roads.

The reported existing and development-generated traffic volumes and level of increase on major roads are summarised in **Table 2.** As the eastern link to Ranford Road has not yet been constructed the traffic using that route in **Figure 4** is assigned to Karel Avenue in the interim scenario.

Table 2: Impact on major surrounding roads – interim scenario

Road	Location	Average weekday traffic		Level of increase (%)
		Existing	Development	
Karel Ave	E of Berrigan Dr	13,100 vpd	1,260 vpd	9.6%
Karel Ave	W of Berrigan Dr	20,100 vpd	1,260 vpd	6.3%
Pilatus St (Berrigan Dr)	N of Jandakot Rd	14,500 vpd	660 vpd	4.6%
Berrigan Dr	W of Jandakot Rd	18,000 vpd	500 vpd	2.8%
Jandakot Rd	E of Berrigan Dr	14,900 vpd	160 vpd	1.1%

The existing traffic volumes on the 350-metre section of Karel Avenue between Roe Highway and Berrigan Drive are already relatively high for a two-lane divided road but it is understood that the State Government plans to upgrade this section of Karel Avenue to dual carriageway standard (two lanes each way) in 2018. The upgraded Karel Avenue will provide sufficient capacity for the long term projected traffic flows on Karel Avenue and will be more than sufficient to accommodate the traffic generated by the proposed Western Power depot development.

6.0 Conclusions

This report provides traffic analysis of the proposed Western Power depot development in Precinct 6 of the Jandakot Airport Master Plan.

The proposed development will generate daily traffic flows of approximately 2,000 vehicles per day (vpd) with around 11% being heavy vehicles. This traffic generation is consistent with the anticipated future traffic generation reported in the Jandakot Airport Master Plan 2014 and is therefore accommodated by the planned road network in this area.

In the short term scenario after completion of the proposed Western Power depot development the additional traffic generated by this development will represent less than a 10% increase on existing traffic volumes on the external road connections into the Jandakot Airport Master Plan area. This traffic increase is generally within the capacity of the existing road network.

It is understood that the State Government plans to upgrade the section of Karel Avenue between Roe Highway and Berrigan Drive to dual carriageway standard (two lanes each way) in 2018. The upgraded Karel Avenue will provide sufficient capacity for the long term projected traffic flows on Karel Avenue and will be more than sufficient to accommodate the traffic generated by the proposed Western Power depot development.

Appendix A

PROPOSED DEVELOPMENT SITE PLAN

SITE PLAN
SCALE: 1 : 1000

SITE CRITERIA

1.	**Site Area**		100,094m²
2.	**Landscaping**		
	a.	Soft Landscaping	3,824m²
	b.	Hard Landscaping (inc. bike store)	2,393m²
	c.	Bike Storage Awning	(50m²) already counted above)
		Total	6,217m² (6.2% of site area)
3.	**Covered Floor Area**		
	a.	Office - 2 Levels	2,000m² NLA - GLA will be larger than NLA shown (4000m² total over 2 x 2000m² floor plates)
	b.	HV Testing & Labs	2,550m²
	c.	Operations Workshop	1,200m²
	d.	Fleet Workshop	3,350m²
	e.	Fleet Office & Amenities	450m²
	f.	Oil Waste Store	1,200m²
	g.	CEVA Drivethrough	5,000m²
	h.	CEVA Store & Env. Shed	2,000m²
	i.	Covered EWP HV Testing Area	50m²
	j.	Covered Battery Storage	50m²
	k.	Covered Tyre Storage	180m²
	l.	Covered Washdown	50m²
	m.	Covered Yard Storage	1250m²
	n.	Covered Pole Assembly	240m²
	o.	Covered Heavy Fleet (Large) Parking Area	6,900m²
	p.	Generator Area	110m²
		Total	28,580m²
4.	**Uncovered Floor Area**		
	a.	Environmental Waste	200m²
	b.	Refuel	72m²
	c.	Uncovered Trailer Parking	2,130m²
	d.	Uncovered Pole Storage	1,450m²
	e.	EWP Commissioning Area	176m²
	f.	On Grade Storage Area	1,450m²
	g.	Heavy Fleet (Small) Parking Area	2,016m²
	h.	Light Fleet Parking Area	4,600m²
		Total	12,094m²
5.	**Light Duty Paving**		
	a.	Uncovered Light Duty Ashphalt Parking	11,229m²
6.	**Balance of Concrete Area**		
	a.	Uncovered Balance of Concrete Paving	47,056m²
7.	**Car Parking**		
	a.	Staff & Visitor parking	426 car bays
	b.	Heavy Fleet bays	138 bays
	c.	Small Fleet bays	56 bays
	d.	Light Fleet bays	184 bays
8.	**Paving Beyond Boundary**		
	a.	Truck Entry Crossover	132m²
	b.	Visitor & Staff Entry Crossover (bitumen)	79m²
	c.	Truck Exit Road & Crossover	1,046m²

PROPOSED DEVELOPMENT
LOCATION:PRECINCT 6, JANDAKOT AIRPORT
FOR:JANDAKOT AIRPORT HOLDINGS

SK005
AUG 2017
1
As indicated @ A1

8234

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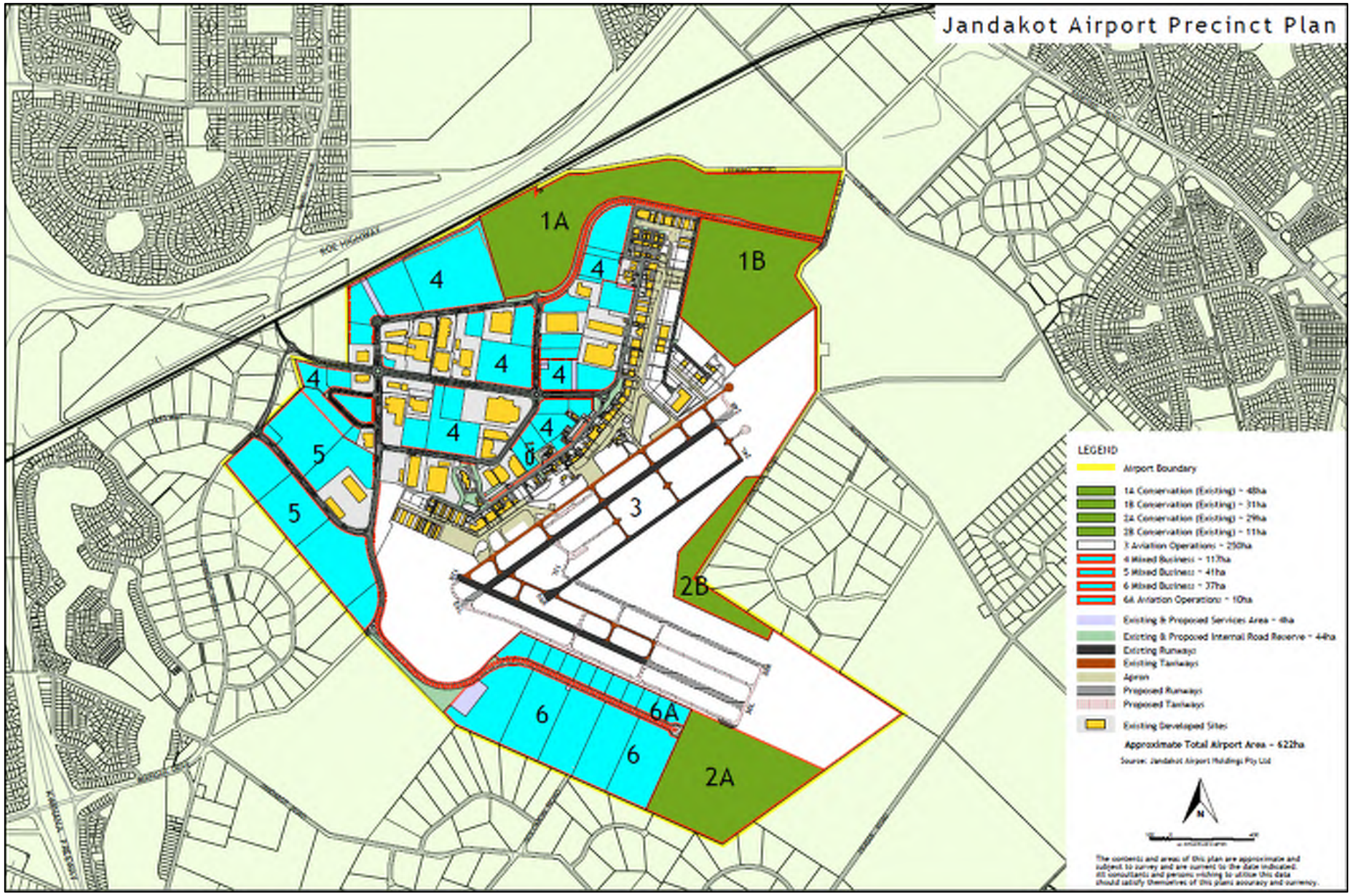
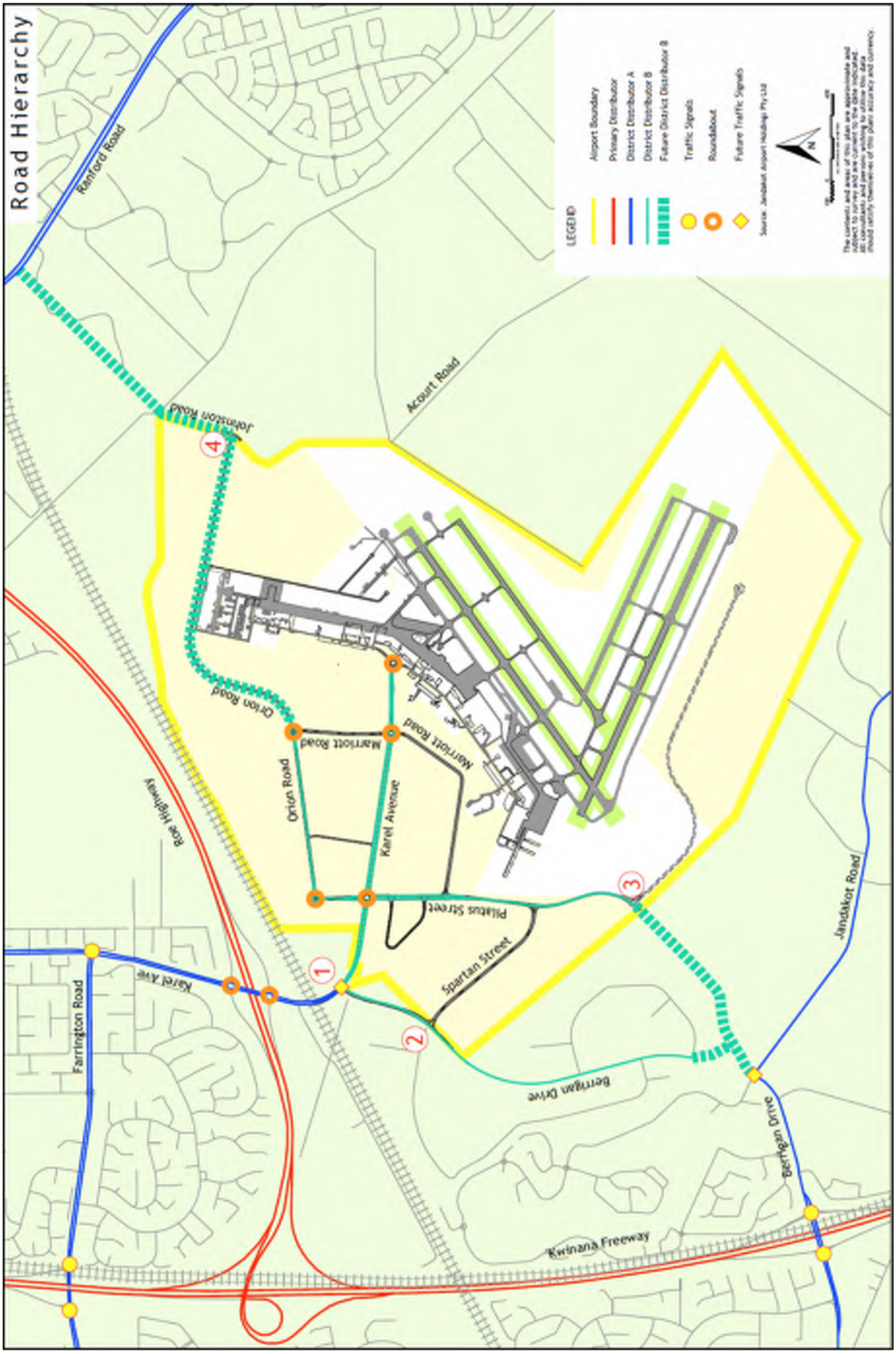
Appendix B

JANDAKOT AIRPORT MASTER PLAN 2014

PRECINCT PLAN AND ROAD HIERARCHY


Jandakot Airport Precinct Plan
1A
1B
2A
2B
3
4
5
6
6A
LEGEND
Airport Boundary
1A Conservation (Existing) - 48ha
1B Conservation (Existing) - 31ha
2A Conservation (Existing) - 29ha
2B Conservation (Existing) - 11ha
3 Aviation Operations - 250ha
4 Mixed Business - 117ha
5 Mixed Business - 41ha
6 Mixed Business - 37ha
6A Aviation Operations - 10ha
Existing & Proposed Services Area - 4ha
Existing & Proposed Internal Road Reserve - 44ha
Existing Runways
Existing Taxiways
Apron
Proposed Runways
Proposed Taxiways
Existing Developed Sites
Approximate Total Airport Area - 622ha
Source: Jandakot Airport Holdings Pty Ltd
N
The contents and areas of this plan are approximate and subject to survey and are current to the date indicated. All consultants and persons wishing to utilise this data should satisfy themselves of this plans accuracy and currency.


Road Hierarchy
Ranford Road
Johnston Road
Acourt Road
Orion Road
Marriott Road
Karel Avenue
Pilbus Street
Spartan Street
Rose Highway
Farrington Road
Jandakot Road
Berrigan Drive
Kwinana Freeway
LEGEND
Airport Boundary
Primary Distributor
District Distributor A
District Distributor B
Future District Distributor B
Traffic Signals
Roundabout
Future Traffic Signals
1
2
3
4