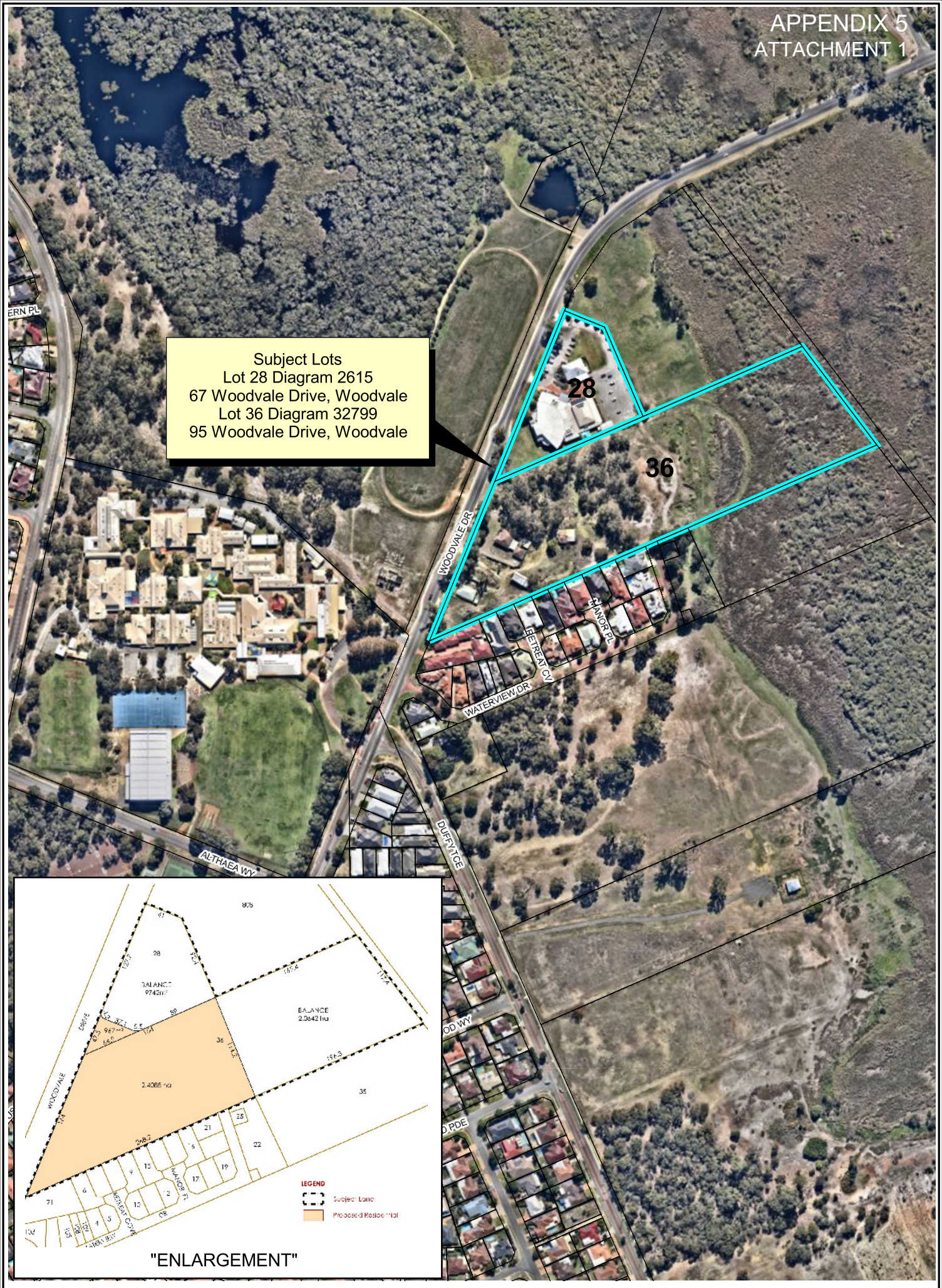
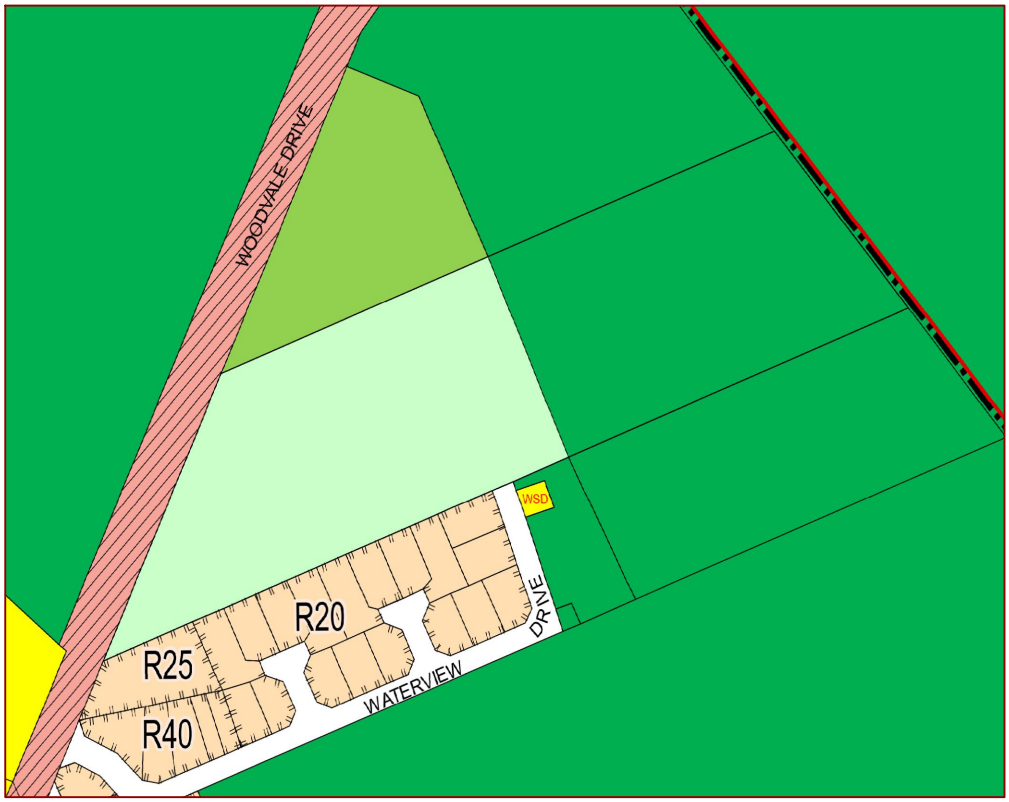
Location plan



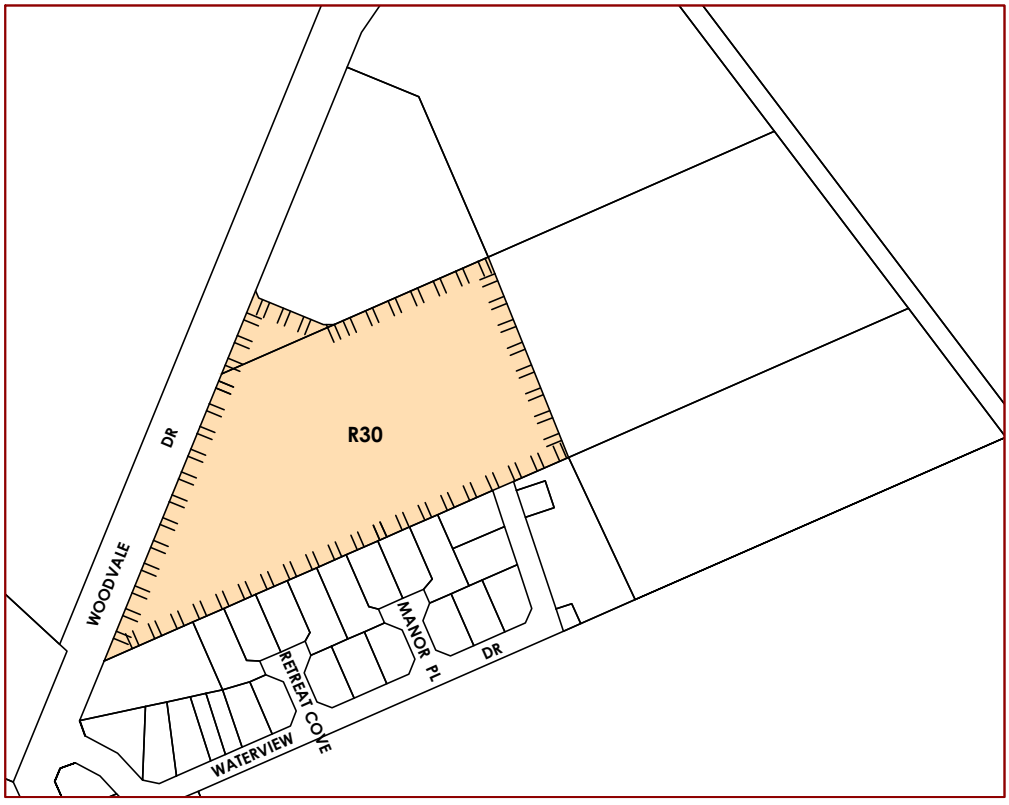
lot28_36-67_95-woodvale-12062023

Scheme amendment map

ATTACHMENT 2



EXISTING ZONING



PROPOSED ZONING

LEGEND

REGION SCHEME RESERVES (MRS)
- Parks and Recreation
- HS — Public Purposes - High School
- WSD — Public Purposes - Water Authority of WA

LOCAL SCHEME RESERVES
- Local Road
- Local Distributor Road

LOCAL SCHEME ZONES
- Residential
- Rural
- Private Community Purposes

OTHER CATEGORIES
- Scheme Area Boundary
- Local Government Boundary
- R20 — R Codes

FIGURE 5

NORTH

0 25 50 75 100m

SCALE 1:4,000 (A4)

PROPOSED SCHEME AMENDMENT
LOCAL PLANNING SCHEME NO.3
WOODVALE

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Plan No: NOB WOO 7-02-05 Client: NOB
Date: 06.02.23 Planner: MB

CITY OF JOONDALUP

ATTACHMENT 3

LOCAL PLANNING SCHEME NO.3 AMENDMENT REQUEST

LOTS 28 (No. 67) AND 36 (No. 95) WOODVALE DRIVE, WOODVALE

CITY OF JOONDALUP

31 March 2023

BURGESS DESIGN GROUP
TOWN PLANNING + URBAN DESIGN

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File reference:	230214RLGA_Scheme Amendment Report v1	

Revision:	Date:	Description:	Author:	Reviewer:
0	14/02/23	First draft	Z MacDonald	J Burgess
1	31/03/23	Final draft	Z MacDonald	J Burgess

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Planning and Development Act 2005

RESOLUTION TO ADOPT AMENDMENT TO LOCAL PLANNING SCHEME

CITY OF JOONDALUP LOCAL PLANNING SCHEME NO.3

AMENDMENT NO. ___

RESOLVED that the local government pursuant to section 72 of the *Planning and Development Act 2005,* amend the above Local Planning Scheme by:

- Rezoning a portion of Lot 28 (No. 67) and a portion of Lot 36 (No. 95) Woodvale Drive, Woodvale from 'Private Community Purposes' and 'Rural' to 'Residential' with a density coding of R30;
- Modifying the Scheme Map accordingly.

The Amendment is standard under the provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015* for the following reason(s):

- an amendment to the scheme so that it is consistent with a region planning scheme that applies to the scheme area, other than an amendment that is a basic amendment.

Dated this _____day of _____2023

_____

(Chief Executive Officer)

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PLAN 1 SCHEME AMENDMENT MAP

1. INTRODUCTION

This amendment to the *City of Joondalup Local Planning Scheme No.3* proposes to rezone a portion of Lot 28 (No. 67) and a portion of Lot 36 (No. 95) Woodvale Drive, Woodvale (the subject "site" or "land") from 'Private Community Purposes' and 'Rural' to 'Residential' with a density coding of R30. This Scheme Amendment is intended to facilitate the preparation, assessment and ultimate determination of a Subdivision Application over the subject land to ensure consistency between the land use of the site and adjacent development.

Pursuant to the *Planning and Development Act 2005* the City is required to initiate an amendment to the *City of Joondalup Local Planning Scheme No.3* to rezone the land, in order to make the classification of the land under LPS3 consistent with the classification of the land under the Metropolitan Region Scheme (MRS).

This amendment follows MRS Amendment 1339/57 (North-East and North-West Districts Omnibus 2), which rezoned the site from 'Rural' to 'Urban' to facilitate the coordination of infill development over the site.

The following report provides an overview of the site characteristics, local context and provides the rational for the proposed Scheme Amendment.

1.1 SITE DETAILS

1.1.1 LEGAL DESCRIPTION

The subject land encompasses a total land area of 4.3648ha and abuts the east side of Woodvale Drive to the north of Waterview Drive.

The subject land is described as:

- Lot 28 on Diagram 2615, Certificate of Title Volume 1755 Folio 754;
- Lot 36 on Diagram 32799, Certificate of Title Volume 134 Folio 149A; and,
- Lot 36 on Diagram 32799, Certificate of Title Volume 1486 Folio 128.

Copies of the Certificates of Title can be found attached in Appendix 1 – Certificates of Title.

1.2 PROPONENT

This amendment has been prepared on behalf of the respective landowners, being various members of the Duffy family (Lot 36) and Woodvale Baptist Church (Lot 28).

1.2.1 LOCATION AND SITE PARTICULARS

The subject site is located in the suburb of Woodvale, approximately 19 kilometres north of the Perth Central Business District, and approximately 6 kilometres south of the Joondalup City Centre (refer Figure 1 - Location Plan).

The subject land is bound by residential development to the south, Woodvale Drive to the west, the Woodvale Baptist Church to the north, and Yellagonga Regional Park to the east.

The subject land comprises two (2) large residential dwellings and various outbuildings and structures on Lot 36. The subject land also includes a small portion of Lot 28 located behind (south of) the Woodvale Baptist Church.

1.3 SURROUNDING LAND USES AND DEVELOPMENT

The subject land is located directly opposite a large area of Public Open Space (POS) being Yellagonga Regional Park.

Waterview Drive is to the south of the site and comprises lots largely ranging from 450m^2 – 780m^2 in area, with a base coding of R20-R40. To the north of the site, is Woodvale Baptist Church, zoned Private Community Purposes. The Church and its associated improvements will remain on the balance portion of Lot 28. To the west of the site, is Woodvale Secondary College, and beyond that, west of Timberlane Drive, is further residential development that has a base coding of R20 (refer Figure 2 - Aerial Photograph).

Other surrounding land uses and facilities include:

- Timberlane Park and Hall (approximately 320m south-west of the site);
- Woodvale Boulevard Shopping Centre (approximately 1.09km south-west of the site).

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FIGURE 1 - LOCATION PLAN

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FIGURE 2 - AERIAL PHOTOGRAPH

2. PLANNING FRAMEWORK

2.1 PLANNING AND DEVELOPMENT ACT 2005

Section 124 of the *Planning and Development Act 2005* requires that the City resolve to amend its local planning scheme within 90 days of a region scheme amendment coming into effect, in order to make its local planning scheme consistent with the region scheme. As such, the proposed amendment is consistent with the requirements of the planning framework.

2.2 METROPOLITAN REGION SCHEME

The majority of the subject land is zoned 'Urban' under the *Metropolitan Region Scheme* (MRS). Part of Lot 36 is reserved as 'Parks and Recreation', and is mapped as Bush Forever Site 299, which contains a Conservation Category Wetland and is within the Yellagonga Regional Park.

As part of its submission on the North-East and North-West District Omnibus 2 MRS Amendment 1339/57, the City of Joondalup stated as follows:

"The City of Joondalup advises that Lots 28 & 36 Woodvale Drive are the last remaining Rural zoned properties within the City and that this designation is no longer appropriate in the context of surrounding residential land uses. The City has requested that the lots are rezoned to Urban to facilitate future development consistent with the urban nature of the locality. The proposal is located in a Bushfire Prone Area and the proponent will therefore be required to demonstrate compliance with the requirements of State Planning Policy 3.7 – Planning in Bushfire Prone Areas prior to finalisation."

MRS Amendment 1339/57 was finalised and the subject land zoned 'Urban' under the Metropolitan Region Scheme. Lot 28 was subsequently rezoned to 'Private Community Purposes' for the Woodvale Baptist Church, leaving Lot 36 as the only lot within the City zoned 'Rural' under Local Planning Scheme No. 3.

2.3 CITY OF JOONDALUP LOCAL PLANNING SCHEME NO.3

The western portion of Lot 36 is zoned 'Rural' under the *City of Joondalup Local Planning Scheme No.3* (LPS3), with the eastern portion reserved as 'Parks and Recreation.' That portion of the subject land within Lot 28 is zoned 'Private Community Purposes'.

2.3.1 PREVIOUS SCHEME AMENDMENT

In 2016 as part of Council's consideration of the draft *City of Joondalup Local Planning Scheme No.3*, the site was proposed to be rezoned from 'Rural' to 'Residential R25'. The site, however, was not able to be advertised and amended at the time given the inconsistency with the MRS. As such, at the City's Ordinary Meeting of Council on 16 February 2016 a motion was put and carried to –

> *'Requests the Western Australian Planning Commission to include Lot 36 (95) and Lot 28 (67) Woodvale Drive, Woodvale, in a future omnibus amendment to the Metropolitan Region Scheme to rezone these lots from 'Rural' to 'Urban'.*

As described in 2.2 above, MRS Omnibus Amendment 1339/57 rezoned Lots 28 & 36 to 'Urban' under the Metropolitan Region Scheme.

2.4 LOCAL PLANNING POLICIES

2.4.1 CITY OF JOONDALUP LOCAL PLANNING STRATEGY

The Scheme Amendment is considered to be consistent with the City of Joondalup's Local Planning Strategy (2014). The Local Planning Strategy sets out various actions in Section 4.2.2 'Actions' related to housing, including implementing the recommendations of the Local Housing Strategy. Two of the Actions most relevant to the subject land include:

> *"As part of the District Planning Scheme review process, develop provisions for large opportunity sites which sets a minimum 'target' density in line with government policy. The requirements will apply to large opportunity sites across the whole City with the exception of the Joondalup City Centre."*

"As part of a future omnibus amendment to the Metropolitan Region Scheme, consider rezoning the two rural lots to 'Urban'. Once this has occurred, rezone the two remaining rural lots under the District Planning Scheme No. 2 to a suitable zone such as 'Residential' to reflect the surrounding residential land uses."

The subject land was initially identified in the Local Housing Strategy, and subsequently in Section 4.12 of the Local Planning Strategy, which provides the following comment with regard to the site:

"There are two lots within the City which are zoned 'rural' under the Metropolitan Region Scheme and the District Planning Scheme No. 2. Both lots are located within the suburb of Woodvale near Ocean Reef Road. One of these lots is owned by the Woodvale Baptist Church and currently used as a place of worship, place of assembly and caretaker's dwelling."

"The other lot contains a horse track and associated buildings. The land surrounding these rural lots is zoned as residential and has been developed. Due to this, it is recommended that the rural lots be rezoned to reflect the surrounding residential uses."

"The rural zoning is no longer appropriate for these lots in the context of the surrounding residential land uses."

In this regard, the Amendment is not only considered to be consistent with the City's Local Planning Strategy, it proposes to implement its recommendations with regard to the subject land.

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FIGURE 3 - METROPOLITAN REGION SCHEME MAP

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FIGURE 4 - LOCAL PLANNING SCHEME No 3 MAP

3. AMENDMENT PROPOSAL

This Scheme Amendment proposes to rezone a portion of Lot 28 (No.67) and a portion of Lot 36 (No.95) Woodvale Drive, Woodvale from 'Rural' and 'Private Community Purposes' to 'Residential' with a density coding of R30 under *the City of Joondalup Local Planning Scheme No.3* (LPS3).

The Scheme Amendment Map is included herewith at Plan 1.

3.1 RATIONALE FOR AMENDMENT

The *Planning and Development Act 2005* requires the City to initiate an amendment to the *City of Joondalup Local Planning Scheme No.3* to rezone the land, in order to make the classification of the land under LPS3 consistent with the classification of the land under the MRS.

Lot 36 is now the last remaining 'Rural' zoned lot within Woodvale and this designation is no longer appropriate in the context of surrounding residential land uses, as confirmed in the City's own Local Planning Strategy.

The proposed density coding of R30 reflects orderly and proper planning given that it will facilitate additional residential development within an established residential area that can be adequately serviced by public transport, community facilities and public open space. The subject land is located adjacent to Yellagonga Regional Park, a Local Distributor Road (being Woodvale Drive), and Woodvale Secondary College. The site is also situated in close proximity to Wanneroo Road (a classified Primary Regional Road) and Ocean Reef Road (a classified Other Regional Road), both of which provide good regional access to and from the subject land.

This amendment proposes to incorporate a portion of Lot 28 to facilitate a more logical and coordinated approach to subdivision and development. The proposal will allow for that portion of Lot 28, surplus to the needs of the Woodvale Baptist Church, to be developed for residential purposes.

4. ENVIRONMENTAL CONSIDERATIONS

An 'Environmental Assessment Report' has been prepared by project environmental consultant PGV Environmental and is attached at Appendix 2.

The report was prepared to describe the environmental values of the site and to assess the potential environmental impacts of the proposed development. The Scope for the report included:

- Database searches;
- Analysis of physical characteristics;
- Description of historical, recent and present land uses;
- A Reconnaissance Flora and Vegetation Survey;
- A Basic Fauna Survey; and,
- A review of relevant policies and legislation

In summary, the Environmental Assessment Report found:

- The site is not registered as a contaminated site and the past and present land uses are not considered constraints to development;
- Surrounding land use does not pose a constraint to the proposed urban development;
- The geology and soils on the site do not pose a risk to development. Acid Sulphate Soils in the central section may need to be investigated when the extent of earthworks and servicing are known;
- The Urban zoned portion of the site contains some remnant native trees in a parkland cleared setting with no native understorey species;
- The absence of a native understorey means that no Threatened or Priority flora species is likely to occur on the site;
- The remnant trees are mostly Marri, with some Tuart and Jarrah. The vegetation in the Urban portion is rated as being in Completely Degraded condition;
- The vegetation does not meet the definition of any Threatened or Priority Ecological Communities;
- The native trees on the site provide 0.615ha of potential foraging habitat for Black Cockatoos although no evidence of foraging on site was observed. The site contains 20 Marri, Jarrah and Tuart trees that meet the definition of breeding habitat. No actual breeding occurs on the site as none of the trees has any hollows large enough for Black Cockatoos to breed in;

- The site contains a portion of Wallubuenup Swamp which is a Conservation Category wetland. PGV Environmental consider the boundary of the mapped wetland is reasonably accurate and does not recommend any changes;
- The interface between the wetland and the trees on the higher western portion of the site contains about 30m of chaotic landform with some small high points and some low-lying depressions that are wet in winter/spring;
- The undulating nature of the wetland interface means that in its current form a 50m wetland buffer is recommended between the wetland boundary and the proposed dwellings. The 50m will allow landscaping of the more uniform landform in the western part of the wetland buffer to be usable POS for the public;
- A Wetland Management Plan is recommended to be prepared as a condition of subdivision;
- Stormwater drainage infrastructure is not normally allowed to be located in the buffer of a CCW. Some overflow of larger events may be supported by the agencies; and,
- The site does not contain any Aboriginal Heritage Sites or sites of other heritage.

The Concept Plan prepared for the site (refer Figure 5) addresses a number of the elements outlined above, including:

- Maintaining the current Conservation Category Wetland (CCW) wetland boundary;
- Providing a 50m buffer to the CCW boundary;
- Providing additional Public Open Space (POS) outside the 50m buffer (which can then contain both useable space for public activities as well as drainage infrastructure); and,
- A hard-edge road interface to the POS/wetland land uses which will also link to existing development to the south of the site (via an extension of Waterview Drive).

PGV Environmental considers the proposed residential development of the 'Urban' portion of the subject land can be done without any significant impact on environmental matters.

PGV Environmental also recommends a Commonwealth EPBC Act referral to be undertaken in parallel with the scheme amendment process. Given the minor nature of proposed clearing and the lack of breeding hollows on site, the report considers the referral would highly likely not require a full assessment.

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FIGURE 5 – CONCEPT PLAN

5. TRANSPORT IMPACT ASSESSMENT

A Transport Impact Assessment (TIA) prepared by Stantec in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 2* is attached at Appendix 3.

The TIA referenced a Concept Plan which was prepared for inclusion in the TIA report at Figure 2-3 in order to provide some high-level commentary on potential traffic movement from the site. The Concept Plan is also attached herewith at Figure 5.

The TIA provides the following key conclusions:

- The site is expected to generate 28 trips during the AM peak hour and 38 trips during the PM peak hour. This low-level traffic generation will not have a detrimental impact on the safety or operation of Woodvale Drive or the surrounding road network.
- Analysis of the proposed intersections has been undertaken using SIDRA software and the result of analysis shows that the proposed intersections will operate satisfactorily.
- The site has access to public transport services with bus stops 'Woodvale Dr before Waterview Dr (Stop ID: 18499)', and 'Woodvale Dr after Waterview Dr (Stop ID: 18496)' being serviced by Bus Routes 466 and 467 (Whitfords Station to Joondalup Station). During both the AM and PM peaks the service frequencies vary between 15-30 minutes. Outside of the AM and PM peaks, the bus services run approximately every 30 minutes.

Overall, the TIA concluded that the traffic impacts associated with the proposed Scheme Amendment and future residential subdivision will be minimal on the internal and external transport network.

6. BUSHFIRE MANAGEMENT PLAN

A small portion of Lot 36 is within a designated bushfire prone area, triggering the application of *State Planning Policy 3.7: Planning in Bushfire Prone Areas* and appurtenant *Guidelines for Planning in Bushfire Prone Areas*.

A Bushfire Management Plan (BMP) has been prepared by Bushfire Prone Planning for the site and can be found at Appendix 4. The Bushfire Management Plan assessed the capacity of the proposed Scheme Amendment and future residential subdivision to implement and maintain the required 'acceptable' solutions or its capacity to satisfy the SPP 3.7 intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

The BMP sets out the following response to the bushfire protection criteria:

- Location

  The land subject to the Scheme Amendment is within an area identified as moderate or low bushfire hazard level that will be subject to a BAL classification not higher than BAL-19 (the majority of lots are BAL-12.5) upon future subdivision and the completion of development.

  This will be achieved through the application of appropriate building design, bushfire construction requirements and the ongoing maintenance of the Asset Protection Zone (APZ). Any future development will ensure buildings will not be impacted by consequential fire with no combustible materials used, stored or accumulated within the APZ.

- Siting and design

  The final definition of APZs will be dealt with at a subsequent development stage (subdivision). Post-development – all remaining vegetation (if any) will be managed and maintained to a low threat state in perpetuity. Appropriate separation around future development may be required to be incorporated into design at future planning stages.

- Vehicular access

  Perimeter roads will be implemented as part of the development, providing a suitable interface to the adjacent parkland areas and giving dual access to future lots. These will be further defined at the later Subdivision stage of development.

- Water

  Hydrants are located on Woodvale Drive in front of Lot 36 and at 200m intervals along Woodvale Drive. Reticulated water for firefighting can be provided at the subdivision and/or development application stage.

The BMP concludes that the bushfire risk is acceptable and manageable, and therefore bushfire risk will not impede the Scheme Amendment and future development of the site.

7. SERVICING

A Servicing Report prepared by Development Engineering Consultants has been prepared to demonstrate that the site can be developed for residential and commercial purposes. A summary of the report is provided below.

Power

- Sufficient power supply exists in the area to supply the development. A high and low voltage aerial power line is located along the western verge of Woodvale Drive and the abutting urban development along Waterview Drive is serviced by underground power.

Water Supply

- At present there is a 150mm Water Corporation reticulation water main located along the eastern verge of Woodvale Drive abutting the site and extended to the Woodvale Baptist Church on the northern boundary of the site. A 100mm Water Corporation water main is located in Waterview Drive extending to the south-east corner of the site.
- These are sufficient to supply the subject land and will be linked as part of the development.

Gas

- ATCO Gas mains are installed in this area, with a 100mm medium pressure main located on the western verge of Woodvale Drive, and also an 80mm main is located in Waterview Drive to the end of the existing roadway at the south-east corner of the site.
- It is expected that reticulated gas services will be extended into this development by ATCO in the normal way, with trenching done by the developer.

Refer **Appendix 5** for complete report.

8. CONCLUSION

The rezoning of a portion of Lot 28 (No. 67) and a portion of Lot 36 (No. 95) Woodvale Drive, Woodvale from 'Private Community Purposes' and 'Rural' to 'Residential' with a density coding of R30 under LPS3, is considered appropriate given the existing urban context and local character. This proposed Scheme Amendment also ensures consistency with the 'Urban' zoning under the *Metropolitan Region Scheme*.

The Scheme Amendment provides an opportunity for infill development, and is also consistent with the City's planning framework; including its Local Planning Strategy.

The technical reports included in the Appendices herein also confirm the suitability of the subject land for the rezoning and future development, as proposed.

ATTACHMENT 4

LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

ENVIRONMENTAL ASSESSMENT REPORT

Prepared for:	Riverswan Holdings Pty Ltd
Report Date:	3 April 2023
Version:	1
Report No.	2023-742

pgv ENVIRONMENTAL

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LIST OF ATTACHMENTS

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1 INTRODUCTION

1.1 Background

Lot 36 and Pt Lot 28 Woodvale Drive, Woodvale (the site) are located in the City of Joondalup, approximately 18.4km north-north-east of the Perth Central Business District (Figure 1). The site is approximately 4.45ha in size (Figure 2) and is bound by Woodvale Drive to the west, developed land to the south, the Woodvale Baptist Church to the north and Yellagonga Regional Park to the east.

The site is proposed to be developed for residential purposes in accordance with its zoning in the Metropolitan Region Scheme.

PGV Environmental was commissioned by Riverswan Holdings Pty Ltd to prepare an Environmental Assessment Report to describe the environmental values of the site and to assess the potential environmental impacts of the proposed development.

1.2 Scope of Works

The Environmental Assessment includes a review of the environmental studies undertaken on the site and an assessment of the key environmental attributes of the site in the context of the proposed development. The Environmental Assessment includes the following:

- Database searches including:
  - Department of Water and Environmental Regulation Contaminated Sites and Water Information databases; and
  - Department of Planning, Lands and Heritage and National Heritage databases.
- Physical characteristics including a description of:
  - Landform;
  - Drainage and water bodies; and
  - Geological, hydrogeological and hydrological characteristics;
- Recent and present land use including:
  - Surrounding land uses;
  - Assessment of current and historical activities on the subject site and surrounding areas which have the potential to result in contamination issues at the site;
- Flora and vegetation description based on the results of a Reconnaissance Flora and Vegetation Survey;
- Fauna habitat description and a Basic Fauna Survey; and
- Implications, if any, under Western Australian policies and legislation such as the *Environmental Protection Act, 1986* and the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999*.

2 LEGISLATION, POLICY AND GUIDELINES

The environmental assessment of this site has taken into consideration the following legislation, policy and guidelines.

2.1 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important heritage places, ecological communities, flora and fauna that are defined in the Act as Matters of National Environmental Significance (MNES).

The Environmental Assessment identifies any MNES that may be impacted by development on the site.

2.2 State Legislation

2.2.1 *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is administered by the Department of Water and Environment Regulation (DWER). The Act provides for conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with it. The Act establishes head powers to provide mechanisms for the development of Environmental Protection Policies (EPP), the referral and assessment of proposals, the control of pollution and enforcement.

The Act also provides for an Environmental Protection Authority (EPA) that is a statutory authority and is the primary provider of independent environmental advice to Government (Environmental Protection Authority 2005). The EPA is assisted by the Office of the EPA (OEPA).

Under the EP Act, clearing of native vegetation requires a permit from DWER unless there is an exemption under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Proposals that have approval by means of a subdivision are exempt from requiring a clearing permit to clear native vegetation if implementing the subdivision in accordance with the subdivision conditions requires the clearing of native vegetation.

2.2.2 *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) protects all native species and threatened ecological communities The BC Act recognises that activities involving the taking of flora or fauna (other than threatened species) and the disturbing of fauna (including threatened species) that are approved under the EP Act do not require further approval under the BC Act, if they are undertaken in accordance with any biodiversity conservation conditions that are applied to an authorisation. These activities include clearing of native vegetation done in accordance with an implementation decision under Part IV of the EP Act.

2.2.3 *Aboriginal Heritage Act 1972*

The *Aboriginal Heritage Act 1972* (AHA) protects all Aboriginal sites whether or not they are known and registered under the AHA.

If any artefacts or other heritage values are discovered during clearing or construction works they will be required to be managed according to the AHA.

2.3 State Policy

2.3.1 State Planning Policy No. 2.8 Bushland Policy for the Perth Metropolitan Region

SPP 2.8 in conjunction with Bush Forever (Government of Western Australia, 2000) seeks to ensure the protection of at least 10 per cent of the original extent of each vegetation complex within the Perth Metropolitan Region. SPP 2.8 was developed to ensure that bushland protection and management issues are appropriately addressed and integrated as a part of future land use. Bush Forever identified approximately 51,200 hectares of regionally significant vegetation for retention. The management of these areas include reservation and acquisition by the State government, negotiated planning solutions with owners who are seeking urban and/or industrial development and advice, assistance and incentive programs to support private conservation.

The eastern part of the site is within Bush Forever Site 299 'Yellagonga Regional Park, Wanneroo/Woodvale/Kingsley'.

2.3.2 State Planning Policy No. 2.9 Water Resources

SPP 2.9 aims to ensure the protection and appropriate management of water resources in line with state guidelines as included within the planning framework. The broad aims of this policy are to:

- Protect, conserve and enhance water resources;
- Assist in ensuring the availability of suitable water resources to maintain essential requirements for human and other biological life and to maintain or improve the quality and quantity of water resources; and
- Promote and assist in the management and sustainable use of water resources.

As a part of implementing this policy, the Better Urban Water Management framework was developed (WAPC, 2008). The framework provides detail on how water resources should be considered at each stage of planning by identifying the various actions and investigations required with regard to regional and local planning strategies, town planning schemes, structure plans, subdivisions, strata subdivision and development applications (WAPC, 2008).

2.3.3 Environmental Guidance for Planning and Development

The purpose of Environmental Protection Authority (EPA) Guidance Statement No. 33 *Environmental Guidance for Planning and Development* (EPA, 2008) is to outline the significance of environmental factors and to provide the key definitions associated with the environmental factors. Ensuring that environmental factors are considered in line with the EPA's principals and objectives and within the planning framework is what this EAR is primarily targeted at. In particular, EPA Guidance Statement No. 33 aims to:

- Provide an overview to environmental protection processes and information;
- Describe the referral and environmental impact assessment process under Part IV of the EP Act; and
- Provide the EPA's position and advice on a range of environmental factors, outlining how to protect, conserve and enhance the environmental values.

3 EXISTING ENVIRONMENT

3.1 Zoning

Most of the site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) with the eastern end reserved as Parks & Recreation (National Map, 2023). The western part of Lot 36 is zoned Rural under the City of Joondalup Local Planning Scheme No. 3 and the eastern part is Parks & Recreation. Pt Lot 28 is zoned Private Community Purposes in LPS No. 3.

3.2 Land Use

3.2.1 Historic Land Use

Historical aerial photography shows that the site was partly cleared in 1953 (the oldest historical aerial photography available) (Plate 1) with a grove of trees remaining at the northwestern end. A house has been established on the site. A wetland is evident at the eastern end of the site.

Plate 1: Aerial Photograph from 1953 (Landgate, 2023)

The grove of trees remains in the photograph from 1965 (Plate 2). Otherwise the site and surrounding areas are cleared apart from the wetland.

Plate 2: Aerial Photograph from 1965 (Landgate, 2023)

Some thinning of the trees was undertaken between 1985 and 1989 (Plate 3).

Plate 3: Aerial Photograph from 1989 (Landgate, 2023)

A horse track was constructed between 2006 and 2008 (Plate 4). The eastern end of the track is within the wetland.

Plate 4: Aerial Photograph from 2008 (Landgate, 2023)

3.2.2 Current Land Use

The site contains two houses, one of which is occupied and some sheds.

The site is not listed as a contaminated site (DWER, 2023a).

3.2.3 Surrounding Land Use

The site has existing urban development to the south, Woodvale Drive and undeveloped grassland to the west, the Woodvale Baptist Church to the north and Yellagonga Regional Park, containing Wallubuenup Swamp to the east.

3.3 Topography

The site slopes very gently down from a high of 20m Australian Height Datum (AHD) at the western end to a low of around 18mAHD at the eastern end (Figure 2).

3.4 Geology and Soils

3.4.1 Geology

The site is mapped as part of the Spearwood System which has the highest relief of the dune systems on the Swan Coastal Plain (Bolland, 1998). The Spearwood system consists of slightly calcareous Aeolian sand remnant from leaching of the underlying Pleistocene Tamala limestone (Davidson, 1995).

3.4.2 Soils

The soil units located on the site is described as

- Spearwood Sand Phase (211Sp_Sp) which are undulating dunes with rocky crests on aeolian sand over limestone in the Swan Coastal Plain between Wanneroo and Moore River. These soils are brown deep sands and yellow deep sands (DPIRD, 2023). These soils are mapped on the western part of the site; and
- Spearwood Wet, Swamp Phase (211SpW_SWAMP) which are soils that occur with swamps (DPIRD, 2023). This soil phase is associated with the wetland in the eastern part of the site.

3.4.3 Land Capability

The Land Degradation Risk Categories of the Spearwood Sand Phase (DPIRD, 2023) are as follows:

- Water Erosion 3-10% of map unit has a high to extreme water erosion risk;
- Wind Erosion >70% of map unit has a high to extreme wind erosion risk;
- Waterlogging <3% of map unit has a moderate to very high waterlogging risk;
- Flooding <3% of the map unit has a moderate to high flood risk; and
- Salinity risk <3% of map unit has a moderate to high salinity risk or is presently saline.

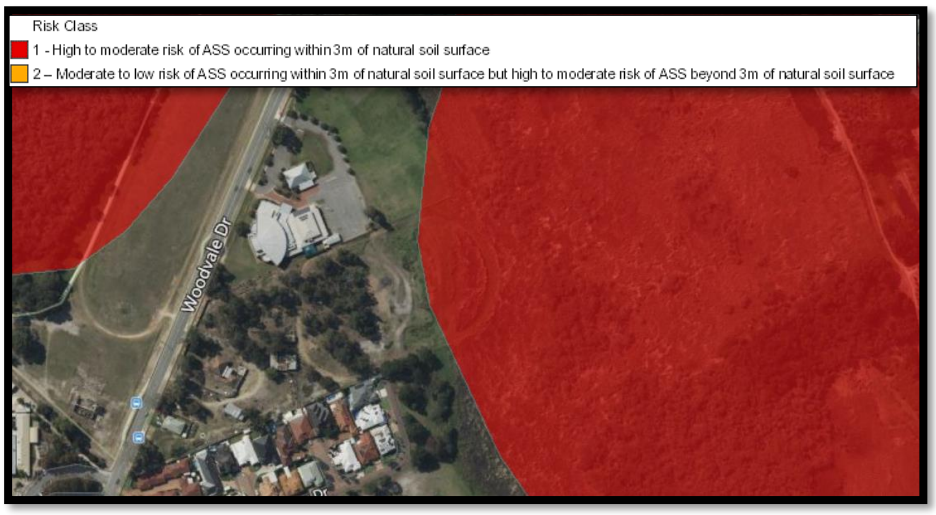
The Land Degradation Risk Categories of the Spearwood Wet, Swamp Phase (DPIRD, 2023) are as follows:

- Water Erosion <3% of map unit has a high to extreme water erosion risk;
- Wind Erosion <3% of map unit has a high to extreme wind erosion risk;
- Waterlogging >70% of map unit has a moderate to very high waterlogging risk;
- Flooding <3% of the map unit has a moderate to high flood risk; and
- Salinity risk <3% of map unit has a moderate to high salinity risk or is presently saline.

3.4.4 Acid Sulphate Soils

The eastern part of the site, associated with Wallubuenup Swamp, is mapped as having a High to Moderate risk of Acid Sulphate Soils (ASS) (Plate 5). The remainder of the lot is mapped as a Low risk within 3m of the surface. Wetland soils are often associated with ASS.

Plate 5: Acid Sulphate Soil Risk Mapping (National Map, 2022)



3.5 Hydrology

Maximum groundwater is at approximately 18m AHD which is around 1m below the surface in the eastern part of the site in Wallubuenup Swamp and up to 2m below ground at the western end. Groundwater generally flows to the east (DWER, 2022).

The eastern end of the site is mapped as part of Wallubuenup Swamp which is a Conservation Category wetland with the Unique Feature Identifier (UFI) 15458. The wetland is classed as a Sumpland which is a seasonally inundated basin. The location of the wetland on the site is shown in Figure 3.

The alignment of the wetland boundary was assessed during a site inspection by PGV Environmental on 18 November 2022. The photograph shown in Plate 6 was taken from the boundary of the mapped wetland on the southern boundary of the lot and looking along the line of the mapped wetland towards the northern boundary. The boundary itself is mostly Kikuyu Grass. The wetland is in the right hand side of the photo and is mostly dense Typha Sedgeland on wet soil. The area to the left of the Kikuyu boundary strip is a chaotic mix of vegetation types with some Kikuyu on higher ground and some stands of Typha and Juncus in small depressions. Plate 9 shows the chaotic nature of the area just outside the wetland boundary.

The mapped boundary of the wetland aligns neatly with wetland vegetation on the lots to the north and south. PGV Environmental considers the mapped wetland boundary to be as accurate as necessary. While the area outside the wetland boundary has some aspects of being a wetland with the Typha and Juncus stands it has just as many dryland vegetation on raised grounds. This area should be treated as wetland buffer rather than an extension of the mapped wetland.

Plate 6: Wetland Boundary

3.6 Flora

A Flora and Vegetation survey of the site was undertaken by Dr Paul van der Moezel of PGV Environmental on 18 November 2022. The survey found that the western part of the site contained native trees in a parkland setting with no native understorey present. The wetland vegetation was not surveyed in detail as there are no development plans for the wetland.

Due to the Completely Degraded condition of the understorey, a Detailed Flora and Vegetation survey does not need to be undertaken in spring.

Two Declared Pest plants were recorded on the site:

- Arum Lily (*Zantedeschia aethiopica*); and
- One-Leafed Cape Tulip (*Moraea flaccida*).

3.7 Vegetation

3.7.1 Vegetation Complexes

Vegetation complexes are a very broad mapping unit based on landform and soils type (Heddle *et al.*, 1980). The vegetation at the western end of the site is mapped as part of the Karrakatta – Central and South vegetation complex while the vegetation in the eastern two-thirds is mapped as the Herdsman Complex. Based on the site survey by PGV Environmental the boundary between the two complexes on the site is probably around 50m further east.

The Karrakatta Central and South vegetation complex is described as:

> Predominantly open forest of Eucalyptus gomphocephala (Tuart) - Eucalyptus marginata (Jarrah) - Corymbia calophylla (Marri) and woodland of Eucalyptus marginata (Jarrah) - Banksia species. Agonis flexuosa (Peppermint) is co-dominant south of the Capel River (Heddle *et al.,* 1980).

The Herdsman complex are described as:

> Sedgelands and fringing woodland of *Eucalyptus rudis* (Flooded Gum) - *Melaleuca* species. (Heddle *et al.,* 1980).

The Completely Degraded nature of the western part of the site means that the remaining trees are not example of the Karrakatta – Central and South vegetation complex. The wetland vegetation is considered to have conservation significance in terms of protecting good quality vegetation within the Herdsman vegetation complex.

3.7.2 Vegetation Types

Vegetation types are a finer level of vegetation description and mapping used for small scale sites, such as the survey area. Vegetation types are described based on the structure of the vegetation (eg. woodland, heath) and the dominant species in each structure.

The vegetation in the western dryland part of the site was mostly Marri trees (*Corymbia calophylla*) with some Tuart (*Eucalyptus gomphocephala*) and a few Jarrah (*Eucalyptus marginata*) trees (Figure 4). Plate 7 shows the completely cleared understorey under a stand of Marri trees. Common weed species included Annual Veldtgrass (*Ehrharta longiflora*), Lupins (*Lupinus cosentinii*), Pigface (*Carpobrotus edulis*), Castor Oil (*Ricinus communis*) and Fumitory (*Fumaria capreolata*).

Plate 7: Marri Trees in the Western Half of the Site

Two vegetation types occur in the mapped wetland area (Figure 4). At the very eastern end the vegetation is mostly a *Melaleuca rhaphiophylla* Tall Open Scrub over reeds. At the western end of the

wetland the vegetation is dense Bulrush (*Typha orientalis* Sedgeland) as shown in Plate 8. Plate 8 also shows the portion of the old horse track that consists mostly of Kikuyu Grass (*Cenchrus clandestinus*) and other rushes and sedges, but not dense Typha.

Plate 8: *Typha orientalis* at the western end of the wetland

The interface between the dryland and wetland areas is a transition zone between the wetland and dryland areas and contains a chaotic mix of vegetation types cause by changes in the natural landform over time (Plate 9). Low-lying parts of the interface contain some small Typha Sedgeland as well as areas of *Juncus acutus* Sedgeland. Higher hummocks, presumably not natural, contain Kikuyu, Couch Grass (*Cynodon dactylon*), Cape Tulip and Lupins.

Plate 9: Wetland Interface

3.7.3 Floristic Community Types

The dryland vegetation is too degraded to assign to a Floristic Community Type (FCT).

The wetland vegetation type was not included in the Gibson *et al.* (1994) analysis of FCTs or any later additions.

3.7.4 Vegetation Condition

The condition of the vegetation was assessed according to the system devised by Keighery and described in Bush Forever (Government of Western Australia, 2000) (Table 2).

Table 2: Vegetation Condition Rating Scale.

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Government of Western Australia, 2000.

The condition of all the upland vegetation on the site is rated as Completely Degraded due to the absence of any native species in the understorey (Figure 5). The wetland interface is rated as Degraded-Good. The wetland vegetation is rated as Very Good. *Typha orientalis* is considered a native species, hence the high rating.

3.8 Flora and Vegetation Conservation Significance

3.8.1 Flora

Due to the Completely Degraded condition of the understorey there would be no Threatened or Priority plant species on the site.

3.8.2 Vegetation

The upland vegetation is too degraded to by any of the Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) that are defined by the FCT level of vegetation description.

3.8.3 Tuart Woodland TEC

The site contains three Tuart trees, mixed in with the Marri trees (Figure 6). As a result, the Tuarts may be part of the Tuart Woodlands and Forests of the Swan Coastal Plain ecological community which was listed as a Critically Endangered Threatened Ecological Community under the Commonwealth EPBC Act on 4 July 2019.

A description of the Tuart Woodland TEC is available through the EPBC Act listing and more specifically the *Approved Conservation Advice (incorporating listing advice) for the Tuart (Eucalyptus gomphocephala) woodlands and forests of the Swan Coastal Plain ecological community* (DoEE, 2017) released by the Commonwealth Government.

The three Tuart trees on the site are close enough to each to be considered one 'patch' of Tuart Woodland in accordance with the listing advice. For a 'patch' to qualify as the Tuart Woodland TEC it must meet size and/or condition thresholds, as follows:

- If the patch is smaller than 0.5 ha it is **not** part of the nationally protected ecological community.
- If **the patch is at least 0.5 ha and up to 5 ha** in size, conduct on ground surveys (see Section 3.4.3) to determine which condition category applies. Patches in this size range are presumed to be part of the nationally protected ecological community unless surveys indicate they do not meet the minimum condition. The condition thresholds are outlined in Table 3.
- **All patches of 5 ha or greater** that meet the key diagnostic characteristics **are part of the nationally protected ecological community**. It is not necessary to conduct additional surveys to confirm that they meet biotic condition thresholds (Table 1) and that they are protected.

Table 3: Tuart TEC Condition Categories and Thresholds

Patch size Biotic thresholds	≥2 ha <5 ha	≥0.5 ha <2 ha
Very high condition ≥80 % of all understorey^ vegetation cover is native# Or At least 12 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with very high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY	Smaller patches with very high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY

Patch size Biotic thresholds	≥2 ha <5 ha	≥0.5 ha <2 ha
High condition ≥60 % of all understorey^ vegetation cover is native# Or At least 8 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with high condition understorey. PART OF THE PROTECTED ECOLOGICAL COMMUNITY	Smaller patches with high condition understorey. **AND** That either: have an important landscape role (≤100 m to native vegetation)* OR have a habitat role (≥2 very large trees per 0.5 ha)* OR show regeneration (≥15 seedlings and/or saplings per 0.5 ha)* PART OF THE PROTECTED ECOLOGICAL COMMUNITY
Moderate condition ≥50 % of all understorey^ vegetation cover is native# Or At least 4 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	Medium sized patches with moderate condition understorey. **AND** That either: have an important landscape role (≤100 m to native vegetation)* OR have a habitat role (≥2 very large trees per 0.5 ha)* OR show regeneration (≥15 seedlings and/or saplings per 0.5 ha)* PART OF THE PROTECTED ECOLOGICAL COMMUNITY	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)
Poor Has minimal or no native cover and species richness. That is: <50 % of all understorey^ vegetation cover is native# And Less than 4 native understorey^ species per 0.01 ha (10 m x 10 m plot or equivalent sample unit)	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)	NOT PART OF THE PROTECTED ECOLOGICAL COMMUNITY (but may be a focus for local protection or restoration)

The size of the Tuart patch defined by the three trees on site is 0.68ha. The condition of the Tuart patch is Poor as there are no native understorey species. A Tuart patch in Poor condition and between0.5 and 2ha does not meet the criteria to be included in the Tuart Woodland TEC.

3.9 Fauna

3.9.1 Fauna Habitat

There are two fauna habitats that occur on the site. The areas containing Marri, Tuart, Jarrah and Exotic Trees is described as Woodland habitat. The areas dominated by Kikuyu and Bulrush is a Sedgeland/grassland habitat.

Fauna habitat can be assessed using a number of factors including, the size of the habitat, the level of habitat connectivity, availability of specific resources (eg. tree hollows) and overall vegetation quality. The habitat was assessed according to the following categories:

High Quality Fauna Habitat – These areas closely approximate the vegetation mix and quality that would have been in the area prior to any disturbance. The habitat has connectivity with other habitats and is likely to contain the most natural vertebrate fauna assemblage.

Very Good Fauna Habitat - These areas show minimal signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) and generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be minimally affected by disturbance.

Good Fauna Habitat – These areas showed signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be affected by disturbance.

Disturbed Fauna Habitat – These areas showed signs of significant disturbance. Many of the trees, shrubs and undergrowth are cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, contain weeds or have been damaged by vehicle or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred.

Highly Degraded Fauna Habitat – These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Faunal assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance. (Coffey Environments, 2009).

The fauna habitat on the site has connectivity to areas of bushland on adjoining properties, however the vegetation is in Completely Degraded condition. Therefore, the habitat on the Urban zoned portion of the site is rated as Disturbed Fauna Habitat.

The wetland area is rated as High Quality Fauna Habitat.

3.9.2 Database Search Results

A search of the Atlas of Living Australia (ALA, 2023) (Appendix 1) and Protected Matters Search Tool (DCCEEW, 2022) (Appendix 2) indicated 54 species have been recorded or may occur near the site, excluding species that rely on a marine environment and pelagic species. Table 3 lists the species identified in these databases.

The DBCA Threatened, Specially Protected and Priority Fauna database shows that there are no records of Conservation Significant species recorded on the site (FAUNA#7250, DBCA, 2022). The only species recorded nearby was Carnaby's Black Cockatoo which was recorded from Wallubuenup Swamp, north of Ocean Reef Road. None of the species identified in the Atlas of Living Australia were recorded on the site (ALA, 2023).

Table 3: List of Fauna Species Identified from Database Searches

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Bettongia penicillata ogilbyi (Bettongia penicillata)	Woylie, Brush-tailed Bettong	Schedule 1 - CR	Endangered	The Woylie habitat types ranged from forest to grassland, coastal and inland. During the day the Woylie shelters under patches of dense undergrowth, logs and rock-cavities and occasionally in burrows.	Highly Unlikely – the site is too disturbed and records of the species are historical only
Calidris ferruginea	Curlew Sandpiper	Schedule 1 - CR	Critically Endangered	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms.	Highly Unlikely – not suitable habitat
Hesperocolletes douglasi	Douglas's Broad-headed Bee	Schedule 1 - CR	Critically Endangered	Douglas's Broad-headed Bee was recorded on Rottnest and rediscovered in Pinjar in Banskia Woodland with pollen from *Philotheca spicata*, *Patersonia occidentalis*, two species of *Stylidium*, a species of *Scaevola* and species from Fabaceae and Myrtaceae (DBCA, 2018).	Highly Unlikely – no habitat plants occur on the site
Limosa lapponica menzbieri	Bar-tailed Godwit (northern Siberian)	Schedule 1 - CR	Marine/ Migratory	The Bar-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh.	Highly Unlikely – not coastal habitat
Numenius madagascariensis	Eastern Curlew	Schedule 1 - CR	Critically Endangered	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets.	Highly Unlikely – not coastal habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Pseudocheirus occidentalis	Western Ringtail Possum, Ngwayir	Schedule 1 - CR	Critically Endangered	The Western Ringtail Possum is a medium sized nocturnal marsupial. This species occurs in and near coastal Peppermint Tree (Agonis flexuosa) forest and Tuart (Eucalyptus gomphocephala) dominated forest with a Peppermint Tree understorey.	Highly Unlikely – not suitable habitat
Botaurus poiciloptilus	Australasian bittern	Schedule 2 - EN	Endangered	The Australasian Bittern occurs mainly in densely vegetated freshwater wetlands and, rarely, in estuaries or tidal wetlands.	Unlikely – not typical habitat
Calidris canutus	Red Knot	Schedule 2 - EN	Marine/ Migratory	In Australasia the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs.	Highly Unlikely – not beach habitat
Calyptorhynchus latirostris	Carnaby's Black Cockatoo	Schedule 2 - EN	Endangered	Carnaby's Cockatoo is found in the south-west of Australia from Kalbarri through to Ravensthorpeand forages on the seeds of Banksia, Hakea, Eucalyptus, Grevillea, Pinus and Allocasuarina spp. It is nomadic often moving toward the coast after breeding. It breeds in tree hollows that are 2.5 - 12m above the ground mostly in smooth-barked trees (SEWPaC, 2012).	Possible – habitat occurs on the site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Rostratula australis (Rostratula benghalensis australis)	Australian Painted Snipe	Schedule 2 - EN	Endangered Marine/ Migratory	The Australian Painted Snipe has been recorded at wetlands in all states of Australia but is most common in eastern Australia. It generally inhabits shallow terrestrial freshwater (occasionally brackish) wetlands, including temporary and permanent lakes, swamps and claypans. It also uses inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains. Typical sites include a cover of vegetation, including grasses.	Unlikely due to surrounding disturbance
Calyptorhynchus banksii naso	Forest Red-tailed Black-Cockatoo	Schedule 3 - VU	Vulnerable	Forest Red-tailed Black Cockatoos frequent the humid to sub-humid south-west of Western Australia from Gingin in the north, to Albany in the south and west to Cape Leeuwin and Bunbury (SEWPaC, 2012). It nests in tree hollows with a depth of 1-5m, that are predominately Marri (Corymbia calophylla), Jarrah (Eucalyptus marginata) and Karri (Eucalyptus diversicolor) and it feeds primarily on the seeds of Marri.	Possible – habitat occurs on the site
Dasyurus geoffroii	Chuditch, Western Quoll	Schedule 3 - VU	Vulnerable	The Chuditch have been known to occupy a wide range of habitats including woodlands, dry sclerophyll forests, riparian vegetation, beaches and deserts. They are opportunistic feeders, and forage on the ground at night, feeding on invertebrates, small mammals, birds and reptiles.	Highly Unlikely – has not been recorded from the area and the site is too disturbed
Leipoa ocellata	Mallee Fowl	Schedule 3 - VU	Vulnerable	Mallee fowl have been found in mallee regions of southern Australia from approximately the 26th parallel of latitude southwards in mallee bushland.	No – not mallee habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Macroderma gigas	Ghost Bat	Schedule 3 - VU	Vulnerable	Ghost bats occur in a wide range of habitats from rainforest, monsoon and vine scrub, to open woodlands in arid areas. These habitats are used for foraging, while roost habitat is more specific. Favoured roosting sites of the ghost bat are undisturbed caves or mineshafts which have several openings (DEHP, 2015).	No – no cave habitat
Sternula nereis nereis (Sterna nereis nereis)	Australian Fairy Tern	Schedule 3 - VU	Vulnerable	The Fairy Tern (Australian) nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation.	Highly Unlikely – not beach habitat
Charadrius leschenaultii	Greater Sand Plover	Schedule 3 - VU Schedule 5 - IA	Marine/ Migratory	In Australasia, the Greater Sand Plover is almost entirely coastal, inhabiting littoral and estuarine habitats. They mainly occur on sheltered sandy, shelly or muddy beaches with large intertidal mudflats or sandbanks, as well as sandy estuarine lagoons.	Highly Unlikely – not coastal habitat
Actitis hypoleucos	Common Sandpiper	Schedule 5 - IA	Marine/ Migratory	The Common Sandpiper is mostly found around muddy margins or rocky shores. Generally the species forages in shallow water and on bare soft mud at the edges of wetlands.	Possible – habitat may occur on the site
Apus pacificus	Fork-tailed Swift	Schedule 5 - IA	Marine/Migratory	The Fork-tailed Swift is almost exclusively aerial and is not known to breed in Australia. They are seen in inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and also over islands and sometimes well out to sea. They also occur over settled areas, including towns, urban areas and cities. Apus pacificus subsp. pacificus is the only subspecies to migrate to Australia.	Highly Unlikely – may fly over the site but is unlikely to land
Calidris acuminata	Sharp-tailed Sandpiper	Schedule 5 - IA	Marine/ Migratory	The Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation.	Possible – habitat may occur on the site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Calidris melanotos	Pectoral Sandpiper	Schedule 5 - IA	Marine/ Migratory	The Pectoral Sandpiper prefers shallow fresh to saline wetlands and is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands.	Possible – habitat may occur on the site
Calidris ruficollis	Red-necked Stint	Schedule 5 - IA	Marine/ Migratory	The Red-necked Stint is mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores.	Highly Unlikely – not coastal habitat
Calidris subminuta	Long-toed Stint	Schedule 5 - IA	Marine/ Migratory	The Long-toed Stint prefers shallow freshwater or brackish wetlands including lakes, swamps, river floodplains, streams, lagoons and sewage ponds. The species is also fond of areas of muddy shoreline, growths of short grass, weeds, sedges, low or floating aquatic vegetation, reeds, rushes and occasionally stunted samphire.	Possible – habitat may occur on the site
Limosa limosa	Black-tailed Godwit	Schedule 5 - IA	Migratory/ Marine	The Black-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh.	Highly Unlikely – not coastal habitat
Motacilla cinerea	Grey Wagtail	Schedule 5 - IA	Migratory/ Marine	The Grey Wagtail is mostly recorded in coastal areas in Western Australia (ALA, 2015) however is widespread. There is non-breeding habitat only in Australia and the species has a strong association with water, particularly rocky substrates along water courses but also lakes and marshes.	Unlikely – not typical habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Pandion cristatus (Pandion haliaetus)	Osprey	Schedule 5 - IA	Marine/ Migratory	Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They feed on fish, especially mullet where available, and rarely take molluscs, crustaceans, insects, reptiles, birds and mammals.	Highly Unlikely – not coastal habitat
Plegadis falcinellus	Glossy Ibis	Schedule 5 - IA	Marine/Migratory	The Glossy Ibis is the smallest ibis known in Australia. This species preferred habitat for foraging and breeding are fresh water marshes at the edges of lakes and rivers, lagoons, flood-plains, wet meadows, swamps, reservoirs, sewage ponds, rice-fields and cultivated areas under irrigation but do not breed in South-west Western Australia.	Possible – habitat may occur on the site
Pluvialis fulva	Pacific Golden Plover	Schedule 5 - IA	Marine/ Migratory	Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in salt works.	Highly Unlikely – not suitable habitat
Pluvialis squatarola	Grey Plover	Schedule 5 - IA	Marine/ Migratory	Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons.	Highly Unlikely – not coastal habitat
Sterna dougallii	Roseate Tern	Schedule 5 - IA	Marine/ Migratory	The Roseate Tern is a migratory coastal seabird that feeds by plunge diving. This species breeds in sites surrounded by walls and rocks or in the shelter of vegetation (in temperate regions) (Birdlife International, 2014).	Highly Unlikely – not coastal habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Tringa glareola	Wood Sandpiper	Schedule 5 - IA	Marine/ Migratory	The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially Melaleuca and River Red Gums Eucalyptus camaldulensis and often with fallen timber.	Possible – habitat may occur on the site
Tringa nebularia	Common Greenshank	Schedule 5 - IA	Marine/ Migratory	The Common Greenshank is a wader and does not breed in Australia. This species can be found in many types of wetlands and has the widest distribution of any shorebird in Australia. This species typically feeds on molluscs, crustaceans, insects, and occasionally fish and frogs.	Possible – habitat may occur on the site
Ardea alba	Great Egret, White Egret		Marine	The Eastern Great Egret has been reported in a wide range of wetland habitats and usually frequents shallow waters. This species feeds on fish, insects, crustaceans, molluscs, frogs, lizards, snakes and small birds and mammals.	Possible – habitat may occur on the site
Ardea (Bubulcus) ibis	Cattle Egret		Marine	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands with breeding in Western Australia recorded in the far north in Wyndham in colonies in wooded swamps such as mangrove forest. This species forages away from water on low lying grasslands, improved pastures and croplands generally in areas that have livestock eating insects, frog, lizards and small mammals.	Possible – habitat may occur on the site
Egretta sacra	Eastern Reef Egret, Eastern Reef Heron		Marine	The Eastern Reef Egret nests in trees in island woodlands, or on the ground under shrubs or rock ledges and feeds on small fish, crustaceans and insects (Birdlife Australia, 2014).	Unlikely – not typical habitat

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Haliaeetus leucogaster	White-bellied Sea-eagle		Marine	The White-bellied Sea-Eagle is found in coastal habitats with large areas of open water, especially those close to the sea-shore. This species feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans, and on carrion and offal.	Highly Unlikely – not coastal habitat
Himantopus himantopus	Black-winged Stilt		Marine	The Black-winged Stilt is found near coastal lagoons and shallow freshwater or brackish pools with extensive areas of mudflats, salt meadows, saltpans, coastal marshes and swamps (Birdlife International, 2014).	Highly Unlikely – not suitable habitat
Merops ornatus	Rainbow Bee-eater		Marine	Populations of the Rainbow Bee-eater that breed in northern Australia are considered to be resident, and in many northern localities the Rainbow Bee-eater is present throughout the year. The Rainbow Bee-eater nests in a burrow dug in the ground. It is found across the better-watered parts of WA including islands preferring lightly wooded, sandy country near water.	Possible –may intermittently occur on the site
Raillus philippensis	Buff banded rail		Marine	The Buff Banded Rail occupies a wide range of terrestrial wetlands, as well as coastal beaches, reef flats, sandbanks, and mangroves, where it forages on the ground, pecking and probing in mud to catch crustaceans, worms and other invertebrates, and rails on beaches may scavenge along the strandline (Birdlife Australia, 2017).	Possible – habitat may occur on the site
Recurvirostra novaehollandiae	Red-necked Avocet		Marine/ Migratory	The Red-necked Avocet occurs in wetland areas including bogs, marshes, swamps and Permanent Saline, Brackish or Alkaline Lakes (Birdlife International, 2014).	Possible – habitat may occur on the site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Idiosoma sigillatum	Swan Coastal Plain shield-backed trapdoor spider	Priority 3		The Swan Coastal Plain Shield-backed Trapdoor Spider arranges fallen twigs from the sheoak tree around the rim of its burrow entrance, enabling it to feel the vibrations of unsuspecting prey that wander by (Curtin, 2018).	Highly Unlikely – not suitable habitat
Hydromys chrysogaster	Water-rat, Rakali	Priority 4		The Water Rat generally prefers wetland habitats characterised by dense, low-lying vegetation (0–30 cm from ground), low-density canopy cover and shallow, narrow water bodies (Speldewinde et al., 2013).	Highly Unlikely – not permanent water
Isoodon fusciventer	Southern Brown Bandicoot, Quenda	Priority 4		Southern Brown Bandicoots are small grey marsupials that prefer dense scrub (up to one metre high). Their diet includes invertebrates (including earthworms, adult beetles and their larvae), underground fungi, subterranean plant material, and very occasionally, small vertebrates (DEC, 2012).	Possible – habitat may occur on the site
Ixobrychus dubius	Australian Little Bittern	Priority 4		The Australian Little Bittern is mainly found in freshwater wetlands, where they inhabit dense emergent vegetation of reeds and sedges, and inundated shrub thickets. They are also occasionally found in brackish and saline wetlands such as mangrove swamps, Juncus-dominated salt marsh and the wooded margins of coastal lagoons (Naturewatch NZ, 2014).	Possible – habitat may occur on the site
Oxyura australis	Blue-billed Duck	Priority 4		The Blue-billed Duck is found on terrestrial wetlands in temperate regions, that are freshwater to saline, and may be natural or artificial. It nests in rushes, sedges, Lignum Muehlenbeckia cunninghamii and paperbark Melaleuca (Birdlife International, 2015). The species is almost completely aquatic, and is seldom seen on land (Birds in Backyards, 2015).	No - no permanent open water on the site

Scientific Name	Common Name	Conservation Status (WA)	Status under EPBC Act	Habitat*	Likelihood to occur on the site
Synemon gratiosa	Graceful Sun-moth	Priority 4		The Graceful Sun-moth is a diurnal moth with dull coloured brown to black forewings and brightly coloured orange hind wings. The larvae burrow into the rhizomes of Lomandra maritima and Lomandra hermaphrodita exclusively and therefore require the presence of one or both of these species to be present in an area (Bishop et al., 2011).	No - no host plants occur on the site

Habitat from SPRAT (SEWPaC, 2015) unless otherwise stated

The Department of Biodiversity, Conservation and Attractions (DBCA) classifies fauna under four different Priority codes and rare and endangered fauna are classified into seven schedules of taxa. These are outlined in Appendix 3.

3.9.3 Conservation Significant Species

Habitat on the site was identified for two listed species of Black Cockatoos being:

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

A detailed assessment of the Black Cockatoo Habitat on the site is in the following section.

There were twelve migratory species identified that could potentially use the wetland portion of the site, listed below, however the use is likely to be infrequent and the site is not likely to provide significant habitat to any of these species particularly given the large area of lakes and swamps in the Yellagonga Regional Park:

- *Actitis hypoleucos* (Common Sandpiper);
- *Calidris acuminata* (Sharp-tailed Sandpiper);
- *Calidris melanotos* (Pectoral Sandpiper);
- *Calidris subminuta* (Long-toed Stint)
- *Plegadis falcinellus* (Glossy Ibis);
- *Tringa glareola* (Wood Sandpiper);
- *Tringa nebularia* (Common Greenshank);
- *Ardea alba* (Great Egret, White Egret);
- *Ardea* (*Bubulcus*) *ibis* (Cattle Egret);
- *Merops ornatus* (Rainbow Bee-eater);
- *Raillus philippensis* (Buff banded rail); and
- *Recurvirostra novaehollandiae* (Red-necked Avocet).

There were two Priority 4 species that may have habitat on the site, however these species are not likely to rely on the site for survival. These species were:

- *Isoodon fusciventer* (Southern Brown Bandicoot, Quenda); and
- *Ixobrychus dubius* (Australian Little Bittern).

3.9.4 Black Cockatoo Habitat

Foraging

The site contains three tree species (Marri, Tuart and Jarrah) that are recognised as providing foraging habitat for foraging by Black Cockatoos. The total area of foraging habitat is 0.615 ha and is shown on Figure 6.

No evidence of Black Cockatoo foraging on trees on the site was observed. However, there was evidence of foraging by Carnaby's Black Cockatoo on a Marri tree in the adjoining Woodvale Road reserve.

Breeding

Black Cockatoos are known to breed in hollows of large eucalypts. The site is not known as a breeding site for Black Cockatoos (DoP, 2011; National Map, 2022). The nearest breeding site is approximately 2.71km to the west (National Map, 2022) (Appendix 2).

No evidence of breeding by Black Cockatoos on the site was observed. None of the trees had any hollows suitable for Black Cockatoos to breed in. There were 20 trees recorded that met the definition of potential breeding habitat due to their DBH being ≥500m (Figure 6, Appendix 4). The total consisted of 15 Marri trees, 3 Tuart trees, one Jarrah tree and a Standing Dead tree (Appendix 4).

Roosting

Black Cockatoos are known to roost overnight in tall trees including native and introduced eucalypts and pine trees generally in close proximity to a fresh water source. The study area contains tall Marri, Tuart and Jarrah trees, however no evidence of roosting was recorded during the survey.

3.9.5 Pest Fauna

There are several pest species that may be present on the site being:

- Red foxes;
- Feral cats;
- European Rabbits;
- House Mice; and
- Black Rats.

3.9.6 Ecological Linkages

The eastern part of the site forms part of the Wallubuenup Swamp which is a part of Bush Forever Site 299 within Yellagonga Regional Park.

3.10 Heritage

There are no Aboriginal Heritage Sites or Places mapped on the site (DPLH, 2023; Appendix 5). Heritage sites can be also be listed under the following lists/registers:

- World Heritage Sites;
- National Heritage Sites;
- Commonwealth Heritage Sites;
- Sites on the register of the National Estate;
- Sites on the Western Australian Heritage Council Register; and
- Sites listed in the City of Swan Municipal Heritage Inventory List.

There are no listed Heritage Sites or Interim Heritage Sites on the site (National Map, 2023; Heritage Council of Western Australia, 2023; DCCEEW, 2023).

4 ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Proposed Development

The site is proposed to be subdivided for residential purposes. A Subdivision Concept Plan has not yet been prepared but will be informed by the results of this EAR.

4.2 Land Use

The previous and current land uses are not considered to be a constraint to development of the site.

4.3 Surrounding Land Use

The land to the south and west of the site is developed for urban purposes and to the north is a church. These land uses do not impede development of the site. The eastern part of the site is within Yellagonga Regional Park and reserved as Parks & Recreation and will not be able to be developed.

4.4 Topography

There are no significant topographic features on the site that would be a constraint to development.

4.5 Geology and Soils

The Spearwood geological unit is not constrained for development. The soils on the western part of the site have a high risk of being susceptible to wind erosion and therefore dust controls will be required during construction. The eastern part has a risk of waterlogging and water erosion however this can be managed with appropriate stormwater controls.

Geotechnical investigations will need to be carried out to investigate any engineering constraints of the soils.

The ASS Risk on the development site is mapped as being High to Moderate (<3m from the surface) in the eastern part of the site associated with the wetland soils. Development in close proximity to the High to Moderate risk area may need to be investigated once the level of soil disturbance is known.

ASS Investigation and, if required, Management Plans should be prepared once the detailed design of soil disturbance on the site is finalised. This should be undertaken in accordance with the *Acid Sulphate Soils Guideline Series: Identification and Investigation of Acid Sulphate Soils and Acidic Landscapes* (DEC, 2009b) and *Treatment and Management of Soils and Water in Acid Sulphate Soil Landscapes* (DEC, 2011).

The risk of ASS can be managed in accordance with standard practices so the presence of ASS should not be an impediment to the proposed development of the site.

4.6 Hydrology

The Urban zoned part of the site has sandy soil which would allow for the treatment of stormwater drainage by infiltration. The treatment of stormwater will need to be undertaken in accordance with *Better Urban Water Management* (WAPC, 2008).

4.7 Wetlands

4.7.1 Wetland Boundary

PGV Environmental assessed the alignment of the mapped wetland boundary as being reasonably accurate and does not recommend any changes in the alignment.

4.7.2 Wetland Buffer

The usual setback distance for development from a Conservation Category wetland is 50m (EPA, 2008). A standard 50m buffer, if applied, is shown on Figure 3. As described in Section 3.7.2 the area just outside the wetland boundary is a transition zone between the wetland and the dryland areas and contains a mix of vegetation types associated with small-scale topographical changes (Plate 9). Low-lying parts in the buffer are wet in winter/spring and contain some Typha Sedgeland as well as *Juncus acutus* Sedgeland. The drier hummocks contain weeds, predominantly Kikuyu, Couch Grass, Cape Tulip and Lupins.

Plate 9: Wetland Interface

The eastern two-thirds of the buffer takes up about 30m of the 40m buffer and would not be usable by the public if retained in its current form in Public Open Space due to the irregular surface levels and the areas of wet depressions in winter/spring. The western third of the wetland buffer is higher and therefore drier and mostly has a regular surface, albeit slightly sloping down to the east (Plate 10). This area could be landscaped with grass and other amenities for public use and possibly planted with trees in a similar way that has occurred for the wetland buffer on the development to the south of the site.

Plate 10: Western Side of the Wetland Buffer

Based on the current soil and topographical conditions of the buffer area, and the City of Joondalup's likely requirement for the buffer area to have some form of public amenity, PGV Environmental does not recommend a reduction of the 50m setback from the wetland boundary.

A Wetland Management Plan is recommended to be prepared as a condition of subdivision. The Wetland Management Plan should outline the treatment of the buffer, public use of the buffer, fencing and paths.

Stormwater drainage infrastructure is not normally allowed to be located in the buffer of a CCW. Some overflow of larger events may be supported by the agencies.

Any rehabilitation proposed for the buffer will need to consider the implications on Bushfire Attack Levels (BALs) and the requirements for setbacks to dwellings due to BALs.

4.8 Flora and Vegetation

The native vegetation is Completely Degraded and there are no Threatened or Priority Flora species on the site. The native vegetation on the site is not considered to be an important remnant of a vegetation complex and is too degraded to be a TEC or PEC.

The vegetation outside of the wetland area is not considered a constraint to development.

4.9 Fauna

The fauna habitat values on the Urban portion of the site have been significantly impacted by past clearing leading to a Highly Degraded Fauna Habitat rating.

The high quality fauna habitat is associated with the wetland which will be retained in the development.

The proposed development is likely to result in the clearing of all trees on the site. The trees provide foraging habitat for Carnaby's and Forest Red-tailed Black Cockatoos as well as 20 potential breeding habitat trees. Any clearing that would have a significant impact on Black Cockatoos is required to be referred under the Commonwealth EPBC Act. A significant impact is defined in broad terms by the *EPBC Act Significant Impact Guidelines 1.1* and more specifically for Black Cockatoos the *Referral Guideline for 3 WA Threatened Black Cockatoo Species* (DAWE, 2022).

According to the Referral Guidelines the clearing of more than 1ha of quality foraging habitat could lead to a significant impact and is likely to require a Referral under the EPBC Act. The amount of foraging habitat on the site is 0.615ha which is less than 1ha, therefore referral based on foraging habitat is not required.

According to the Referral Guidelines the clearing of *any* potential nesting trees is highly likely to require a Referral under the EPBC Act. The site contains 20 potential breeding habitat trees, most, if not all, of which would be cleared for an urban development. Therefore, a Referral under the EPBC Act is recommended. Based on previous EPBC Act Referral of similar amount of habitat clearing, PGV Environmental considers the result of a Referral would highly likely not require a full assessment, however each proposal is considered on its own merits.

4.10 Heritage

There are no Aboriginal Heritage sites or sites of other heritage values on the site. Heritage, therefore is not an impediment to development.

5 SUMMARY AND CONCLUSION

5.1 Summary

The Environmental Assessment of Lot 36 and Pt Lot 28 Woodvale Drive, Woodvale found the following:

- The western portion of the site is zoned for Urban development in the MRS and the eastern portion is reserved Parks and Recreation and part of Bush Forever Site 299 within the Yellagonga Regional Park;
- The site is not registered as a contaminated site and the past and present land use are not considered constraints to development;
- Surrounding land use does not pose a constraint to the proposed urban development;
- The geology and soils on the site do not pose a risk to development. Acid Sulphate Soils in the central section may need to be investigated when the extent of earthworks and servicing are known;
- The Urban zoned portion of the site contains some remnant native trees in a parkland cleared setting with no native understorey species;
- The absence of a native understorey means that no Threatened or Priority flora species is likely to occur on the site;
- The remnant trees are mostly Marri, with some Tuart and Jarrah. The vegetation in the Urban portion is rated as being in Completely Degraded condition;
- The vegetation does not meet the definition of any Threatened or Priority Ecological Communities;
- The native trees on the site provide 0.615ha of potential foraging habitat for Black Cockatoos although no evidence of foraging on site was observed. The site contains 20 Marri, Jarrah and Tuart trees that meet the definition of breeding habitat. No actual breeding occurs on the site as none of the trees has any hollows large enough for Black Cockatoos to breed in;
- The site contains a portion of Wallubuenup Swamp which is a Conservation Category wetland. PGV Environmental consider the boundary of the mapped wetland is reasonably accurate and does not recommend any changes;
- The interface between the wetland and the trees on the higher western portion of the site contains about 30m of chaotic landform with some small high points and some low-lying depressions that are wet in winter/spring;
- The undulating nature of the wetland interface means that in its current form a 50m wetland buffer is recommended between the wetland boundary and the proposed dwellings. The 50m will allow landscaping of the more uniform landform in the western part of the wetland buffer to be usable POS for the public;
- A Wetland Management Plan is recommended to be prepared as a condition of subdivision;
- Stormwater drainage infrastructure is not normally allowed to be located in the buffer of a CCW. Some overflow of larger events may be supported by the agencies;
- The site does not contain any Aboriginal Heritage Sites or sites of other heritage.

5.2 Conclusion

The rezoning of the Rural portion of the land in the City of Joondalup's Local Planning Strategy will need to be referred to the EPA under Section 48A of the *Environmental Protection Act 1956.* PGV Environmental considers the proposed development of the western portion of the site can be done without any significant impact on environmental matters. Therefore, the EPA should not require the TPS Amendment to be fully assessed.

The clearing of up to 20 potential Black Cockatoo breeding habitat trees should be referred under the Commonwealth EPBC Act. PGV Environmental considers the result of a Referral would highly likely not require a full assessment.

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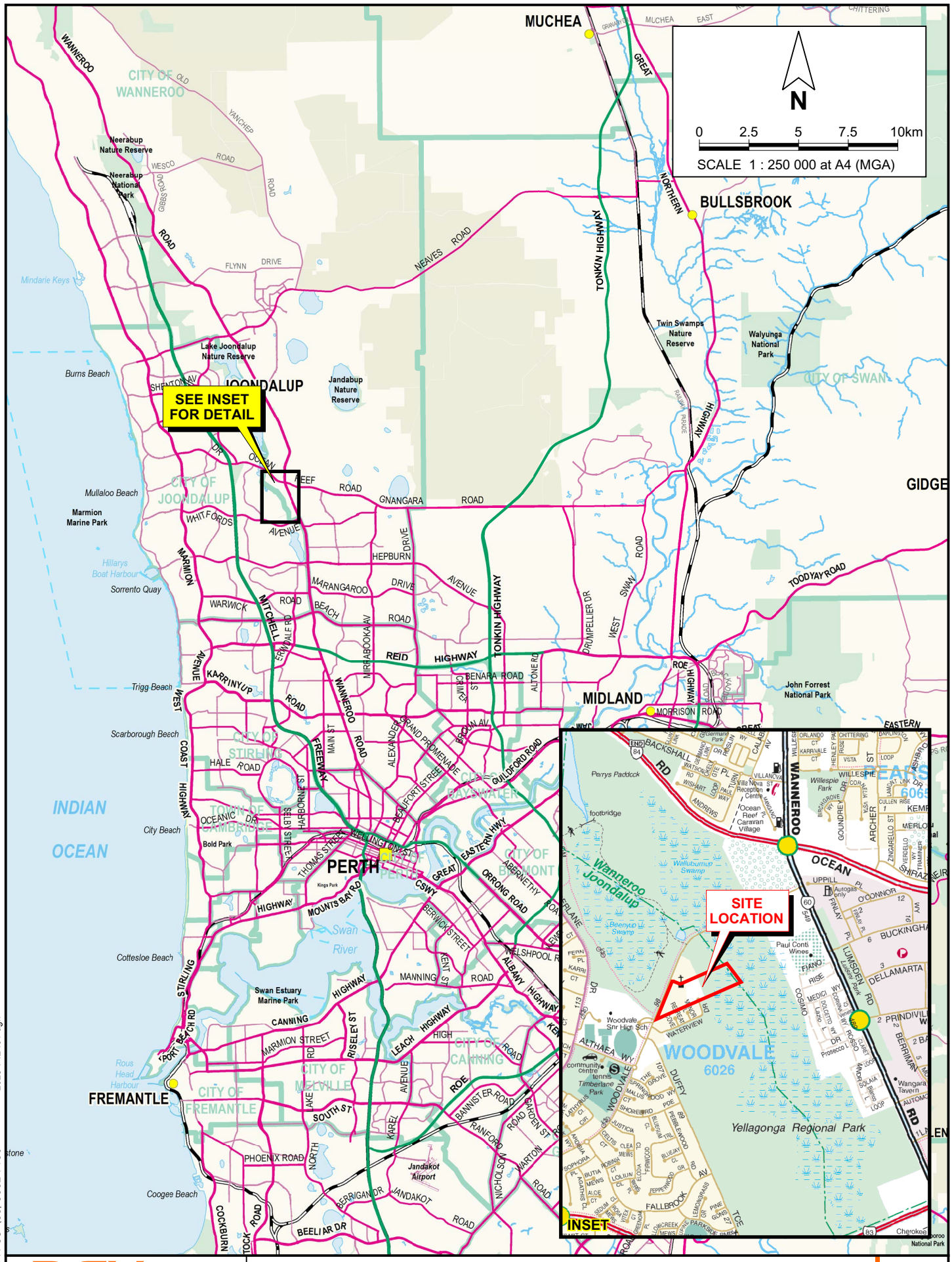
FIGURES



PINPOINT CARTOGRAPHICS (08) 9562 7136 2023-742-f01.dgn

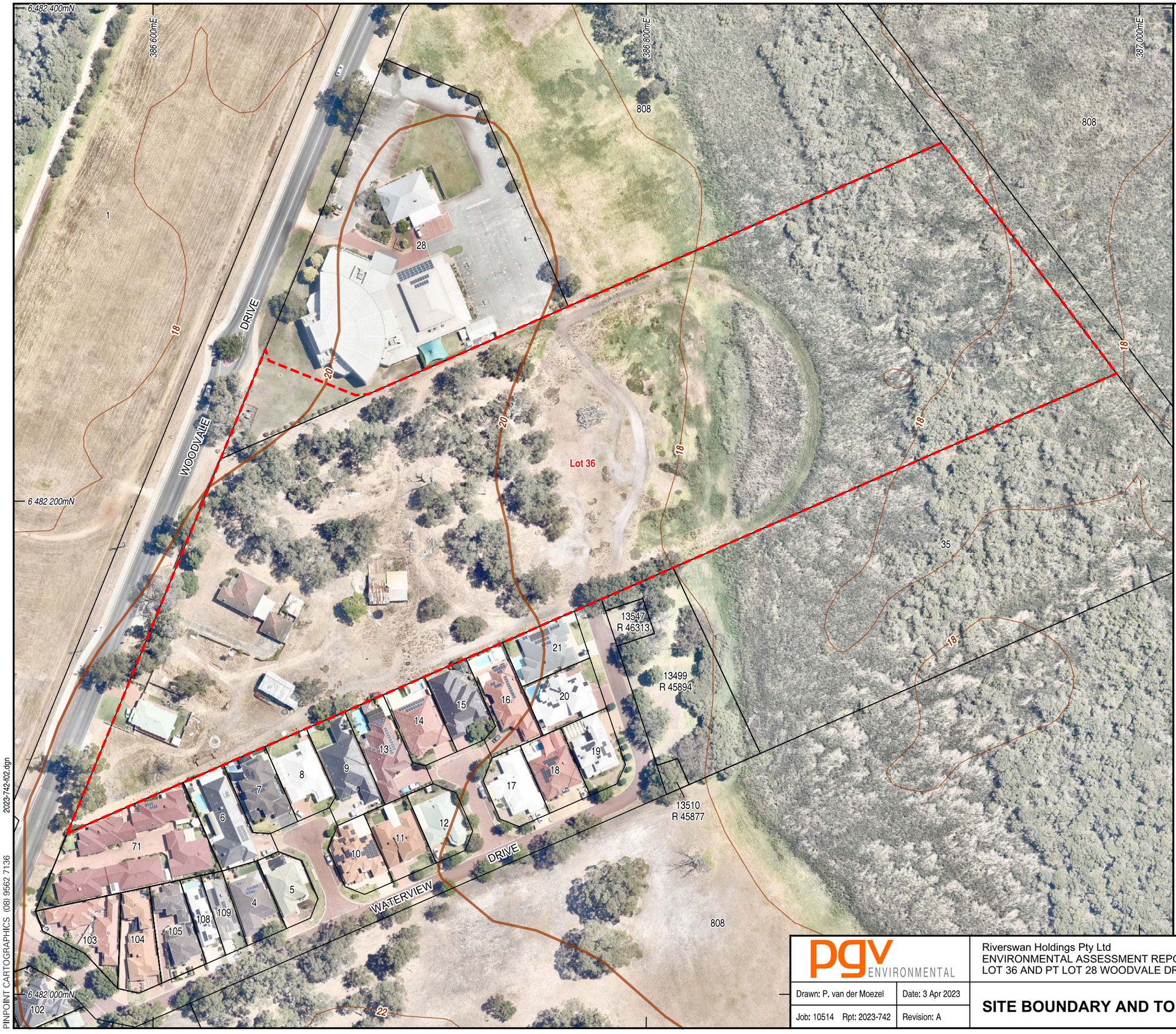
pgv ENVIRONMENTAL

Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel	Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742	Revision: A

SITE LOCATION

Figure 1



N

0 10 20 30 40 50m

SCALE 1 : 1 500 at A3 (MGA)

Legend

- Site Boundary
- Cadastral Boundary
- Topographic Contour

CADASTRAL SOURCE: Landgate, March 2023.
CONTOUR SOURCE: Dept. of Agriculture, 2000.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2023.
SITE BOUNDARY SOURCE: Burgess Design Group, Plan: NOB WOO 7-02-02, 06-02-23.

PINPOINT CARTOGRAPHICS (08) 9562 7136 2023-742-f02.dgn

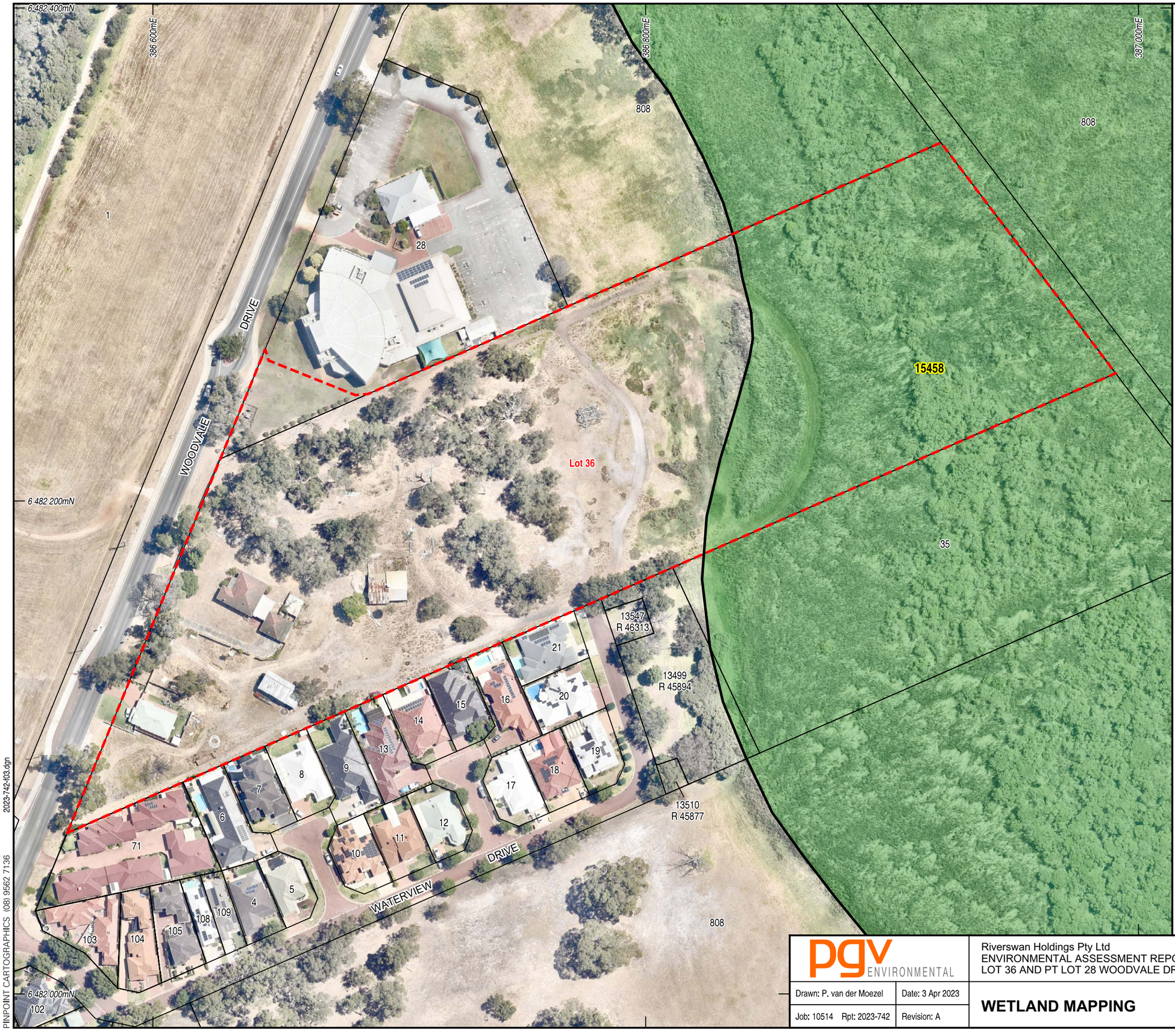
pgv ENVIRONMENTAL

Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel | Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742 | Revision: A

SITE BOUNDARY AND TOPOGRAPHY

Figure 2



N

0 10 20 30 40 50m

SCALE 1 : 1 500 at A3 (MGA)

Legend

- Site Boundary
- Cadastral Boundary

Geomorphic Wetlands

- Conservation Category
- 15458 Wetland UFI Number

WETLANDS SOURCE: DBCA, November 2022.
CADASTRAL SOURCE: Landgate, March 2023.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2023.
SITE BOUNDARY SOURCE: Burgess Design Group, Plan: NOB WOO 7-02-02, 06-02-23.

pgv ENVIRONMENTAL

Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel | Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742 | Revision: A

WETLAND MAPPING

Figure 3

PINPOINT CARTOGRAPHICS (08) 9562 7136 2023-742-f03.dgn

N

0 10 20 30 40 50m

SCALE 1 : 1 500 at A3 (MGA)

Legend

- Site Boundary
- Cadastral Boundary
- Vegetation Type Boundary
- **W** Vegetation Type

Vegetation Types

- **W** Marri (*Corymbia calophylla*) Woodland over weeds
- **Ex** Exotic trees
- **J** *Juncus acutus* Sedgeland
- **T** *Typha orientalis* Sedgeland
- **Mr** *Melaleuca rhaphiophylla* Tall Open Scrub
- **K** Kikuyu (*Cenchrus clandestinus*) Grassland

CADASTRAL SOURCE: Landgate, March 2023.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2023.
SITE BOUNDARY SOURCE: Burgess Design Group, Plan: NOB WOO 7-02-02, 06-02-23.

pgv ENVIRONMENTAL

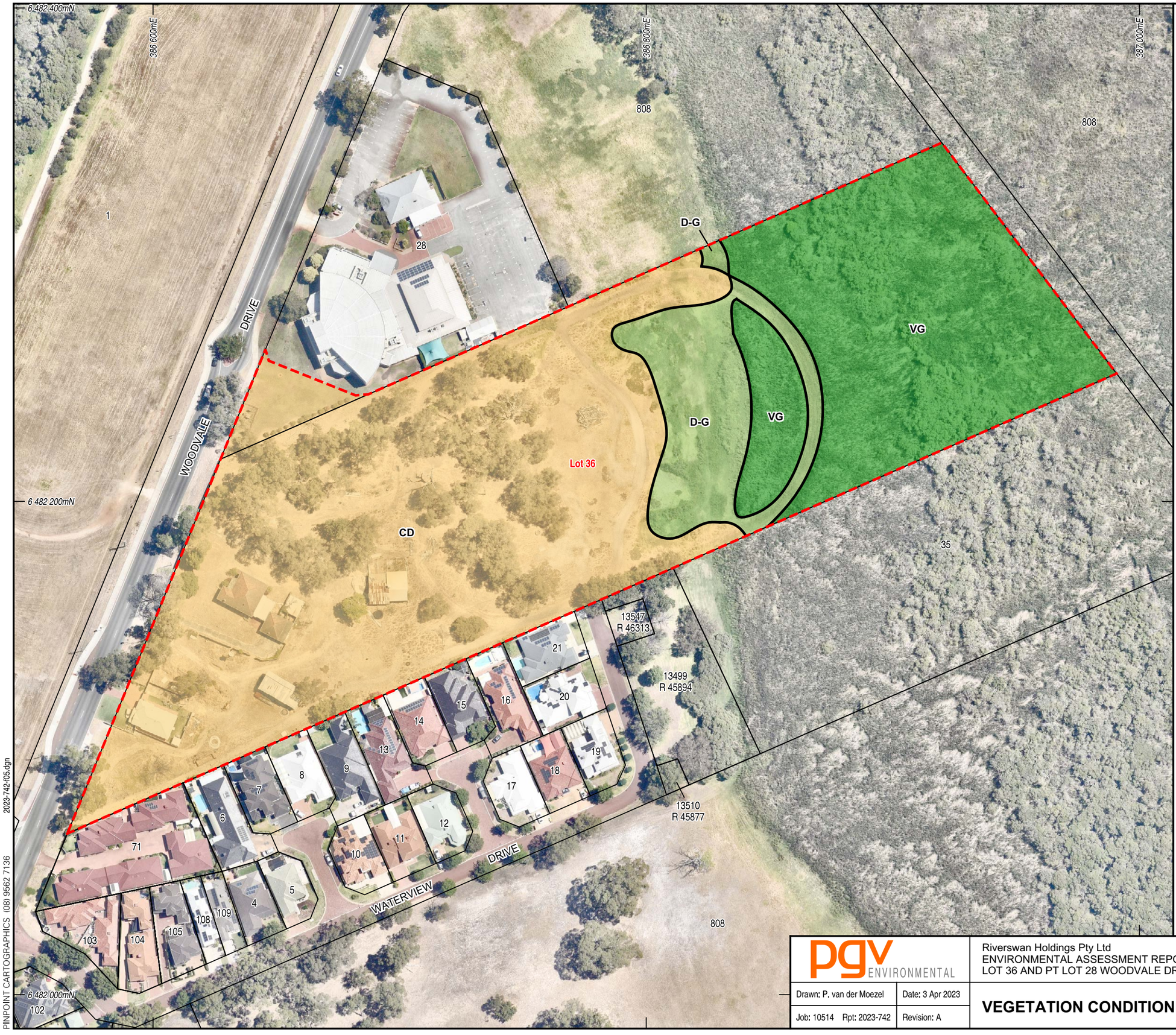
Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel | Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742 | Revision: A

VEGETATION TYPE

Figure 4

2023-742-f04.dgn
PINPOINT CARTOGRAPHICS (08) 9562 7136



N

0 10 20 30 40 50m

SCALE 1 : 1 500 at A3 (MGA)

Legend

- Site Boundary
- Cadastral Boundary
- Vegetation Condition Boundary
- VG Vegetation Condition

Vegetation Condition

- Very Good
- Degraded to Good
- Completely Degraded

Vegetation Condition
(SOURCE: Bush Forever, Govt. of W.A., 2000)

P - Pristine
Pristine or nearly so, no obvious signs of disturbance.

Ex - Excellent
Vegetation structure intact, disturbance affecting individual species and weeds are non aggressive species.

VG - Very Good
Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.

G - Good
Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.

D - Degraded
Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.

CD - Completely Degraded
The structure of the vegetation is no longer intact and the areas is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora composing weed or crop species with isolated native trees or shrubs.

Cl - Cleared
No native vegetation remaining.

CADASTRAL SOURCE: Landgate, March 2023.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2023.
SITE BOUNDARY SOURCE: Burgess Design Group, Plan: NOB WOO 7-02-02, 06-02-23.

pgv ENVIRONMENTAL

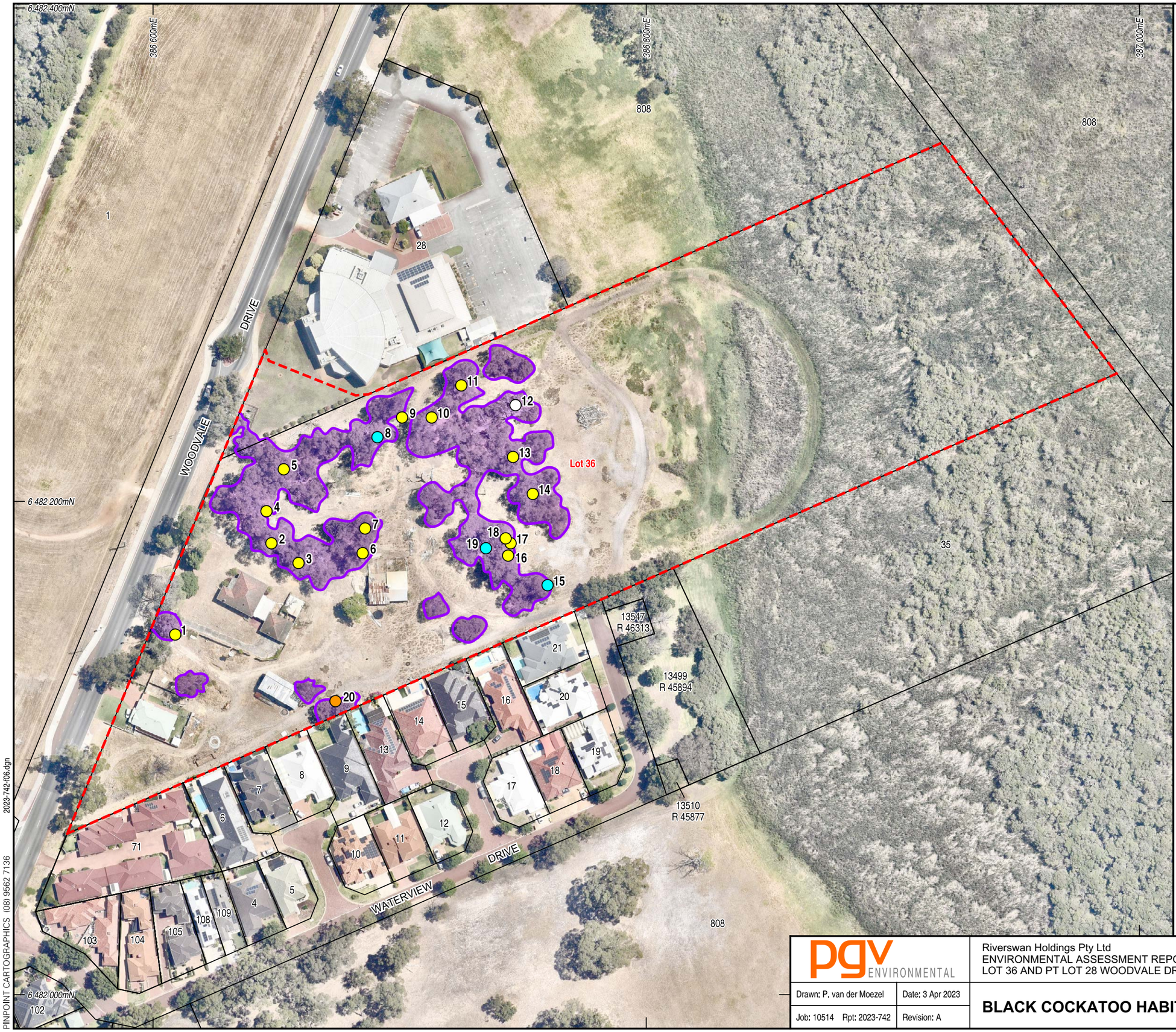
Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel | Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742 | Revision: A

VEGETATION CONDITION

Figure 5

PINPOINT CARTOGRAPHICS (08) 9562 7136 2023-742-105.dgn



N

0 10 20 30 40 50m

SCALE 1 : 1 500 at A3 (MGA)

Legend

- Site Boundary
- Cadastral Boundary
- Black Cockatoo Foraging Habitat

Potential Breeding Habitat Trees

- Marri (*Corymbia calophylla*)
- Tuart (*Eucalyptus gomphocephala*)
- Jarrah (*Eucalyptus marginata*)
- Standing Dead Tree
- 7 Tree Number

CADASTRAL SOURCE: Landgate, March 2023.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown January 2023.
SITE BOUNDARY SOURCE: Burgess Design Group, Plan: NOB WOO 7-02-02, 06-02-23.

pgv ENVIRONMENTAL

Riverswan Holdings Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
LOT 36 AND PT LOT 28 WOODVALE DRIVE, WOODVALE

Drawn: P. van der Moezel | Date: 3 Apr 2023
Job: 10514 Rpt: 2023-742 | Revision: A

BLACK COCKATOO HABITAT

Figure 6

2023-742-f06.dgn
PINPOINT CARTOGRAPHICS (08) 9562 7136

APPENDIX 1

Atlas of Living Australia

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/d03ef73f-d3a7-42af-be70-c61413d68718	Abantiades albofasciatus	(Swinhoe, 1892)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hepialidae	Abantiades	
https://biodiversity.org.au/afd/taxa/d2dac84e-c302-4ac7-9fdc-6ba4a02b476a	Abispa (Abispa) ephippium	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Abispa	
https://biodiversity.org.au/afd/taxa/8698c1d0-2079-477f-832a-0771c8df7cad	Acanthagenys rufogularis	Gould, 1838	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Acanthagenys	Spiny-cheeked Honeyeater
https://biodiversity.org.au/afd/taxa/500e1350-1d00-4f1c-b9d3-d02b949cdd47	Acanthiza (Acanthiza) apicalis	Gould, 1847	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Acanthiza	Red-rumped Tit
https://biodiversity.org.au/afd/taxa/aa581ac7-f29a-4e72-be0d-48a5e0a64de3	Acanthiza (Geobasileus) chrysorrhoa	(Quoy & Gaimard, 1830)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Acanthiza	Yellow-tail
https://biodiversity.org.au/afd/taxa/4b7b9c4a-1b60-4a43-ab70-b57bfc790138	Acanthiza (Geobasileus) inornata	Gould, 1841	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Acanthiza	Masters' Tit
https://biodiversity.org.au/afd/taxa/0242155c-714e-4f53-b973-333aab1343fb	Acanthorhynchus superciliosus	Gould, 1837	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Acanthorhynchus	Western Spinebill
https://biodiversity.org.au/afd/taxa/d470af0d-c131-48f7-961d-a55686e6a185	Accipiter (Leucospiza) fasciatus	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Accipiter	Grey-headed Goshawk
https://biodiversity.org.au/afd/taxa/02725816-5d59-41e1-aa00-f7cc41cd66dc	Accipiter (Paraspizias) cirrocephalus	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Accipiter	Collared Sparrowhawk
https://biodiversity.org.au/afd/taxa/2ba88fd9-4afa-444f-8165-f1ebb0fbf728	Achyra affinitalis	(Lederer, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Achyra	
https://biodiversity.org.au/afd/taxa/8c181054-63bc-4139-81dc-6a8d98d0bdba	Acrida conica	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Acrida	Giant Green Slant-face
https://biodiversity.org.au/afd/taxa/d4822aaa-639c-46a3-8ce1-18a21fdc9c32	Acritoscincus trilineatus	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Acritoscincus	Western Three-lined Skink
https://biodiversity.org.au/afd/taxa/51829a26-3d88-4238-be5b-354de5174292	Acrocephalus (Acrocephalus) australis	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Acrocephalidae	Acrocephalus	Australian Reed Warbler
https://biodiversity.org.au/afd/taxa/abeb5bf8-d03e-4b33-a1ea-bcfc0695102c	Actitis hypoleucos	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Actitis	Common Sandpiper
https://biodiversity.org.au/afd/taxa/0cb62000-c387-415a-9f5d-15fe848a2110	Adversaeschna brevistyla	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Odonata	Aeshnidae	Adversaeschna	
https://biodiversity.org.au/afd/taxa/06c31d5c-61c7-400e-a036-6afa17b80ca8	Aedes (Rampamyia) notoscriptus	(Skuse, 1889)	species	Animalia	Arthropoda	Insecta	Diptera	Culicidae	Aedes	
https://biodiversity.org.au/afd/taxa/d9d5caed-f028-4a4c-97cb-c686690ea582	Agrius convolvuli	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Sphingidae	Agrius	
https://biodiversity.org.au/afd/taxa/579f62c4-22c2-4150-87af-61e9031dc4f3	Agrotis munda	Walker, 1857	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Agrotis	
https://biodiversity.org.au/afd/taxa/c95005c7-8318-429a-b708-8945d20a5433	Alcaeus lignicolor	Walker, 1867	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Alcaeus	
https://biodiversity.org.au/afd/taxa/50a9ff8c-2ff2-4866-b42a-09efb17ca2ce	Aleeta curvicosta	(Germar, 1834)	species	Animalia	Arthropoda	Insecta	Hemiptera	Cicadidae	Aleeta	
https://biodiversity.org.au/afd/taxa/b817ed58-14c6-4169-bcad-66f7a227e72a	Amblyomma triguttatum	Koch, 1844	species	Animalia	Arthropoda	Arachnida	Ixodida	Ixodidae	Amblyomma	
https://biodiversity.org.au/afd/taxa/0724a2b5-5216-4f98-96b0-7761e4133204	Amegilla (Notomegilla) chlorocyanea	(Cockerell, 1914)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Apidae	Amegilla	Blue Banded Bee
https://biodiversity.org.au/afd/taxa/cdd95894-bea9-439e-84cd-b807f8cc5242	Anas (Anas) platyrhynchos	Linnaeus, 1758	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Anas	Mallard
https://biodiversity.org.au/afd/taxa/81be58f5-caf7-4f3d-b1eb-d4f83eb0af5a	Anas (Anas) superciliosa	Gmelin, 1789	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Anas	Parera
https://biodiversity.org.au/afd/taxa/d0d5b903-32e8-48ee-b7c0-91f5ea9433a9	Anas (Nettion) castanea	(Eyton, 1838)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Anas	Chestnut Teal
https://biodiversity.org.au/afd/taxa/efaa935b-e248-456a-b85e-b048b465b676	Anas (Nettion) gracilis	Buller, 1869	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Anas	Oceanic Teal
NZOR-6-40597	Anas rhynchotis	Latham	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Anas	Australasian Shoveler
https://biodiversity.org.au/afd/taxa/29796f05-7bba-4837-8fa2-9b58ba1bd3b8	Anax papuensis	(Burmeister, 1839)	species	Animalia	Arthropoda	Insecta	Odonata	Aeshnidae	Anax	
https://biodiversity.org.au/afd/taxa/c1d3308d-b6d6-496c-81b0-97c689259d3a	Anhinga novaehollandiae	(Gould, 1847)	species	Animalia	Chordata	Aves	Pelecaniformes	Anhingidae	Anhinga	Arrgarrg
https://biodiversity.org.au/afd/taxa/bf3fcd09-dc47-4ec8-9612-1b4089c7258a	Anilios australis	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Typhlopidae	Anilios	Southern Blind Snake
https://biodiversity.org.au/afd/taxa/618a2c4c-ddf2-4042-a6a7-34a3e893c219	Anthochaera (Anellobia) chrysoptera	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Anthochaera	Little Wattlebird
https://biodiversity.org.au/afd/taxa/59b7c7f5-1d07-4ab0-90ef-9be0885de1dd	Anthochaera (Anellobia) lunulata	Gould, 1838	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Anthochaera	Western Wattlebird
https://biodiversity.org.au/afd/taxa/8204979f-5302-41ea-943f-01d3c420f7bb	Anthochaera (Anthochaera) carunculata	(Shaw, 1790)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Anthochaera	Red Wattlebird
https://biodiversity.org.au/afd/taxa/9ef64a31-2ba4-4a76-8334-f038b40ea381	Anthomyia punctipennis	Wiedemann, 1830	species	Animalia	Arthropoda	Insecta	Diptera	Anthomyiidae	Anthomyia	
https://biodiversity.org.au/afd/taxa/c832e3bf-7ff0-4a28-a9d2-f50ed0857b1f	Anthrax incomptus	Walker, 1849	species	Animalia	Arthropoda	Insecta	Diptera	Bombyliidae	Anthrax	
https://biodiversity.org.au/afd/taxa/f05bd22b-e51f-49b8-8df7-026955602baf	Anthrenocerus australis	(Hope, 1843)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dermestidae	Anthrenocerus	Australian Carpet Beetle
https://biodiversity.org.au/afd/taxa/428afbec-3947-4aa8-b871-0bcf9de68f2c	Anthrenus (Florilinus) museorum	(Linnaeus, 1761)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dermestidae	Anthrenus	
https://biodiversity.org.au/afd/taxa/4f20c198-9224-4d9b-82fd-6070e449ee8f	Anthrenus (Nathrenus) verbasci	(Linnaeus, 1767)	species	Animalia	Arthropoda	Insecta	Coleoptera	Dermestidae	Anthrenus	
https://biodiversity.org.au/afd/taxa/e53a981f-22da-4f2f-a489-85c3ee79473e	Anthus (Anthus) novaeseelandiae	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Motacillidae	Anthus	Australian Pipit
https://biodiversity.org.au/afd/taxa/566fa247-c252-4bf5-895b-39b0f5bab32c	Antichiropus whistleri	Attems, 1911	species	Animalia	Arthropoda	Diplopoda	Polydesmida	Paradoxosomatidae	Antichiropus	
https://biodiversity.org.au/afd/taxa/742646c4-7ee5-466a-b94c-c692ee57f434	Aphaenogaster poultoni	Crawley, 1922	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Aphaenogaster	
https://biodiversity.org.au/afd/taxa/1a490f00-368f-427c-8d4c-fa3f3271d75f	Apis (Apis) mellifera	Linnaeus, 1758	species	Animalia	Arthropoda	Insecta	Hymenoptera	Apidae	Apis	
https://biodiversity.org.au/afd/taxa/a4f3e880-e8d4-4459-8a45-247bf200d0e0	Aprasia repens	(Fry, 1914)	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Aprasia	Southwestern Sandplain Worm Lizard
https://biodiversity.org.au/afd/taxa/a485d484-20b7-4687-8397-6b33bdbc1526	Apricia jovialis	(L. Koch, 1879)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Apricia	
https://biodiversity.org.au/afd/taxa/e2b6aed6-2f82-4b7c-9966-5ef2f9190bee	Apus (Apus) pacificus	(Latham, 1801)	species	Animalia	Chordata	Aves	Apodiformes	Apodidae	Apus	Fork-tailed Swift
https://biodiversity.org.au/afd/taxa/23e2ccef-06b0-4749-abc6-d8a710b94f69	Aquila (Uroaetus) audax	(Latham, 1801)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Aquila	Wedge-tailed Eagle
https://biodiversity.org.au/afd/taxa/463b6e20-8f71-4e8e-af1c-8f308fd63744	Arachnura higginsi	(L. Koch, 1872)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Arachnura	
https://biodiversity.org.au/afd/taxa/e9938cbe-cdd7-4826-96dd-f981ee06d27b	Araneus talipedatus	(Keyserling, 1887)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Araneus	
https://biodiversity.org.au/afd/taxa/3da69b6c-5152-4f96-bf75-ce208d759c5f	Archaeosynthemis leachii	(Selys, 1871)	species	Animalia	Arthropoda	Insecta	Odonata	Synthemistidae	Archaeosynthemis	
https://biodiversity.org.au/afd/taxa/b129c2db-7d93-4688-a17f-2f77f1a09ae1	Archimantis sobrina	Saussure, 1872	species	Animalia	Arthropoda	Insecta	Mantodea	Mantidae	Archimantis	Large Brown Mantid
https://biodiversity.org.au/afd/taxa/143cc9f0-bc3c-45b7-8e1c-21fbe9319bba	Ardea alba	Linnaeus, 1758	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Ardea	Baluun
https://biodiversity.org.au/afd/taxa/82bed74a-c22a-4c65-8fe7-ac335f199708	Ardea intermedia	Wagler, 1829	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Ardea	A-garnandharrh
https://biodiversity.org.au/afd/taxa/cf8e02dd-2a6e-41dc-b14b-0e446444250a	Ardea pacifica	Latham, 1801	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Ardea	White-necked Heron
https://biodiversity.org.au/afd/taxa/3b9c4cc1-1465-4b7d-8015-8fd558ed4531	Ardenna pacifica	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Ardenna	Wedge-tailed Petrel
https://biodiversity.org.au/afd/taxa/1865b014-426d-42dc-b53c-91c208e9b89e	Ardeotis australis	(J.E. Gray, 1829)	species	Animalia	Chordata	Aves	Gruiformes	Otididae	Ardeotis	Plain Turkey
https://biodiversity.org.au/afd/taxa/33013eb9-e3e1-4e2b-95a4-89d7505ad0a1	Argiope protensa	L. Koch, 1872	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Argiope	
https://biodiversity.org.au/afd/taxa/204cbfe1-dcdd-42b9-8511-0d92f00ab166	Argiope trifasciata	(ForsskÃ¥l, 1775)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Argiope	
https://biodiversity.org.au/afd/taxa/11d782c0-b5e6-4be8-970d-777fd3875fec	Argyrodes antipodianus	O.P.-Cambridge, 1880	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Argyrodes	
https://biodiversity.org.au/afd/taxa/9f0d30c0-e324-4454-97dd-e1f5c6e206ff	Armadillidium vulgare	(Latreille, 1804)	species	Animalia	Arthropoda	Malacostraca	Isopoda	Armadillidiidae	Armadillidium	
https://biodiversity.org.au/afd/taxa/429cd14f-2018-47e4-b084-037f6bb03249	Arrade destituta	(Walker, 1865)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Arrade	
https://biodiversity.org.au/afd/taxa/6c3c2da2-508b-43c4-b0df-c69a99c0aae0	Artamus (Angroyan) cinereus	Vieillot, 1817	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Artamus	Black-faced Woodswallow
https://biodiversity.org.au/afd/taxa/320aeab1-aead-4b82-a580-8cd3ae99fdef	Artamus (Angroyan) cyanopterus	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Artamus	Dusky Woodswallow
https://biodiversity.org.au/afd/taxa/2cfd3178-5ca9-4b57-9182-17a7e1764e69	Astraeus (Astraeus) macmillani	Barker, 1975	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Astraeus	
https://biodiversity.org.au/afd/taxa/f2f806e5-6103-4dc7-bb84-45998bf1aba1	Astraeus (Depollus) aberrans	van de Poll, 1886	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Astraeus	
https://biodiversity.org.au/afd/taxa/227f47ce-b27a-41c9-8bc3-a4e29f9ecf9f	Atractomorpha similis	BolÃ-var, 1884	species	Animalia	Arthropoda	Insecta	Orthoptera	Pyrgomorphidae	Atractomorpha	Common Grass Pyrgomorph
https://biodiversity.org.au/afd/taxa/e453dbf4-ac86-44b6-8776-de892b568f51	Austracantha minax	(Thorell, 1859)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Austracantha	

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/110d0c94-3439-4f5b-82cb-6ec0b9cde190	Australomisidia cruentata	(L. Koch, 1874)	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Australomisidia	
https://biodiversity.org.au/afd/taxa/0cb18aba-116d-465d-94e6-784ecd86f7e4	Austroagrion cyane	(Selys, 1876)	species	Animalia	Arthropoda	Insecta	Odonata	Coenagrionidae	Austroagrion	
https://biodiversity.org.au/afd/taxa/c7fe51be-dcfa-43cc-818d-c4b0579f6a91	Austrochiltonia subtenuis	(Sayce, 1902)	species	Animalia	Arthropoda	Malacostraca	Amphipoda	Chiltoniidae	Austrochiltonia	Amphipod
https://biodiversity.org.au/afd/taxa/d9ec8440-78e7-4797-bb92-27e75b262b08	Austrohoplochaetella imparicystis	(Michaelsen, 1907)	species	Animalia	Annelida	Oligochaeta		Megascolecidae	Austrohoplochaetella	
https://biodiversity.org.au/afd/taxa/41d32c25-20dd-4dd4-b52c-cbccfafa38a0	Austrolestes analis	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Odonata	Lestidae	Austrolestes	
https://biodiversity.org.au/afd/taxa/2fe21bed-d7f5-4e45-8deb-5d4e5b08fc4d	Austrolestes annulosus	(Selys, 1862)	species	Animalia	Arthropoda	Insecta	Odonata	Lestidae	Austrolestes	
https://biodiversity.org.au/afd/taxa/f79c45d5-a700-470e-94c8-8d03ed8c04d1	Austrosciapus connexus	(Walker, 1835)	species	Animalia	Arthropoda	Insecta	Diptera	Dolichopodidae	Austrosciapus	
https://biodiversity.org.au/afd/taxa/d37d230d-c913-4248-b32e-c601761d1813	Austrothemis nigrescens	(Martin, 1901)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Austrothemis	
https://biodiversity.org.au/afd/taxa/615bdd63-9e8b-4f8d-9637-489c2a80c281	Aythya (Nyroca) australis	(Eyton, 1838)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Aythya	Brownhead
https://biodiversity.org.au/afd/taxa/d61bcd8c-b603-43ee-bb84-50faf2952d92	Backobourkia brouni	(Urquhart, 1885)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Backobourkia	
https://biodiversity.org.au/afd/taxa/0b73e8bb-c141-4f07-8b14-47c3510c9c98	Badumna insignis	(L. Koch, 1872)	species	Animalia	Arthropoda	Arachnida	Araneae	Desidae	Badumna	
https://biodiversity.org.au/afd/taxa/80115d8a-e36b-4944-9005-0b5a5dc69abc	Badumna longinqua	(L. Koch, 1867)	species	Animalia	Arthropoda	Arachnida	Araneae	Desidae	Badumna	
https://biodiversity.org.au/afd/taxa/33cb4b8a-5016-4e24-94ca-694d97f218c8	Bakeriana procurrens	(Jacobi, 1909)	species	Animalia	Arthropoda	Insecta	Hemiptera	Cicadellidae	Bakeriana	
https://biodiversity.org.au/afd/taxa/5fed5ecf-2199-4f64-a9f7-90b39f88a90a	Barnardius zonarius	(Shaw, 1805)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Barnardius	Australian Ringneck
https://biodiversity.org.au/afd/taxa/eedce521-aaa8-43fa-bbd7-0074d0bcbf4b	Biziura lobata	(Shaw, 1796)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Biziura	Musk Duck
https://biodiversity.org.au/afd/taxa/dba78701-cae9-4afb-a41a-6697c52c5e34	Botaurus poiciloptilus	(Wagler, 1827)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Botaurus	Australasian Bittern
https://biodiversity.org.au/afd/taxa/ba965aeb-5125-46b5-acf8-dbb049106f7d	Bothriembryon (Bothriembryon) bulla	(Menke, 1843)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Bothriembryontidae	Bothriembryon	
https://biodiversity.org.au/afd/taxa/b078bf14-1322-474b-bb86-404d996b0579	Bothriembryon (Bothriembryon) kendricki	Hill, Johnson & Merrifield, 1983	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Bothriembryontidae	Bothriembryon	
https://biodiversity.org.au/afd/taxa/33cc201a-3634-4cec-bd9c-c2859966203c	Brachyurophis semifasciatus	GÃ¼nther, 1863	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Brachyurophis	Southern Shovel-nosed Snake
https://biodiversity.org.au/afd/taxa/b5f84596-ce29-4f8b-aed7-a71b5198da28	Bradybaena similaris	(FÃ©russac, 1821)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Camaenidae	Bradybaena	
https://biodiversity.org.au/afd/taxa/b753892a-155e-4190-98ab-8e85cc9840b7	Bubulcus ibis	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Bubulcus	Cattle Egret
https://biodiversity.org.au/afd/taxa/ec1da3d8-9780-48d0-b328-7d75e1ad0ebf	Buddelundia cinerascens	(Budde-Lund, 1912)	species	Animalia	Arthropoda	Malacostraca	Isopoda	Armadillidae	Buddelundia	
https://biodiversity.org.au/afd/taxa/2c33a1fd-34f4-48ec-9ae6-38b51f2aa7ea	Cacatua (Cacatua) galerita	(Latham, 1790)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Cacatua	Sulphur-crested Cockatoo
https://biodiversity.org.au/afd/taxa/ab8816d0-2599-4813-a4c7-00d45d0c7ed0	Cacatua (Licmetis) pastinator	(Gould, 1841)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Cacatua	Western Corella
https://biodiversity.org.au/afd/taxa/34b31e86-7ade-4cba-960f-82a6ae586206	Cacatua (Licmetis) sanguinea	Gould, 1843	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Cacatua	Little Corella
https://biodiversity.org.au/afd/taxa/1268648b-451b-4cb1-b931-ef54dcab9ba0	Cacatua (Licmetis) tenuirostris	(Kuhl, 1820)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Cacatua	Long-billed Corella
https://biodiversity.org.au/afd/taxa/408ee81c-6558-4ddf-b732-f9ad7d09f1ae	Cacomantis (Vidgenia) flabelliformis	(Latham, 1801)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Cacomantis	Fan-tailed Cuckoo
https://biodiversity.org.au/afd/taxa/3b05d614-aca5-4d6e-b4b9-8bd7ac7f7ee6	Calidris (Crocethia) alba	(Pallas, 1764)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Sanderling
https://biodiversity.org.au/afd/taxa/3d2396a0-b532-410a-87e7-d1fe3ab497f6	Calidris (Ereunetes) ruficollis	(Pallas, 1776)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Red-necked Stint
https://biodiversity.org.au/afd/taxa/cbef5be9-829a-4691-9de4-125356441b1f	Calidris (Ereunetes) subminuta	(Middendorff, 1851)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Long-toed Stint
https://biodiversity.org.au/afd/taxa/f452242f-5a35-4d5d-a141-7e2dfb9f176b	Calidris (Erolia) acuminata	(Horsfield, 1821)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Sharp-tailed Sandpiper
https://biodiversity.org.au/afd/taxa/e6ea1087-ce34-4cf8-be85-546a9d732965	Calidris (Erolia) ferruginea	(Pontoppidan, 1763)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Curlew Sandpiper
https://biodiversity.org.au/afd/taxa/a5b1896e-ef50-4571-ac94-7c1f1c031049	Calidris (Erolia) melanotos	(Vieillot, 1819)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Calidris	Pectoral Sandpiper
https://biodiversity.org.au/afd/taxa/19ead63b-75ca-4a9c-9541-5293ebab6f8b	Callomelitta antipodes	(Smith, 1853)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Colletidae	Callomelitta	
https://biodiversity.org.au/afd/taxa/a7b48a73-14d8-405a-958a-17f1fe46f945	Calotemognatha varicollis	(Carter, 1913)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Calotemognatha	
https://biodiversity.org.au/afd/taxa/70eed478-5390-40c7-8660-97810fef7365	Calotemognatha yarelli	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Calotemognatha	
https://biodiversity.org.au/afd/taxa/39083a3e-faf5-4b48-a5f0-69c2bfa32d68	Calyptorhynchus (Calyptorhynchus) banksii	(Latham, 1790)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Calyptorhynchus	Red-tailed Black Cockatoo
https://biodiversity.org.au/afd/taxa/df0e1cf0-aed0-4e5d-affc-cdbcdcdaae2a	Camponotus chalceus	Crawley, 1915	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Camponotus	
https://biodiversity.org.au/afd/taxa/b1bfa820-1974-4ceb-8b52-3f791c746e76	Camponotus terebrans	(Lowne, 1865)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Camponotus	
https://biodiversity.org.au/afd/taxa/910b27e8-19c3-4194-b55a-fd95a80ccdf9	Caretta caretta	(Linnaeus, 1758)	species	Animalia	Chordata	Reptilia	Testudines	Cheloniidae	Caretta	Loggerhead Turtle
https://biodiversity.org.au/afd/taxa/41d01e6b-e265-424d-8d6d-e39966b4ce8f	Casmerodius modesta	J.E. Gray, 1831	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Casmerodius	Eastern Great Egret
https://biodiversity.org.au/afd/taxa/02d0aa55-ed80-433a-a720-0aa971fe2c2a	Castiarina anchoralis	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/9b27ace8-a0ca-44ae-b292-738dbca34420	Castiarina aureola	(Carter, 1913)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/48f3f156-a0b5-4858-8095-21d4b885e19b	Castiarina bazilisca	(Obenberger, 1933)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/5a2d93bf-0657-459a-ad9f-c17b7fd5b9d3	Castiarina crocicolor	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/dfbd4199-b657-4163-bc11-6f05c781c659	Castiarina cupreoflava	(Saunders, 1869)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/ac05ef33-5323-4514-9f90-d322e896944d	Castiarina decemguttata	(Gory, 1841)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/f972ba83-905d-4f8b-a956-eba1e16b5b1d	Castiarina mansueta	(Kerremans, 1898)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/99992944-b7c4-448e-92ae-d50205e00ab1	Castiarina mimesis	Barker, 1993	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/8833cc4a-73e7-48b6-9a8f-37b76b612dd6	Castiarina pallidiventris	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/36f99ede-f626-4588-9c23-dfcc0241289c	Castiarina placida	(Thomson, 1879)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/7ffbf204-cb65-4632-9312-3c1047ae3ea9	Castiarina rufipennis	(Kirby, 1818)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/f5013a8e-bca0-4063-a07a-e17577f0aba0	Castiarina simulata	(Gory & Laporte, 1838)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Castiarina	
https://biodiversity.org.au/afd/taxa/d72f15c3-954c-4558-b920-4240172ea9d7	Catadromus lacordairei	Boisduval, 1835	species	Animalia	Arthropoda	Insecta	Coleoptera	Carabidae	Catadromus	Green-lined Ground Beetle
https://biodiversity.org.au/afd/taxa/e9f5efc2-9a69-4434-9473-9167f3786e4b	Celaenia excavata	(L. Koch, 1867)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Celaenia	
https://biodiversity.org.au/afd/taxa/56912aa7-1ce3-49a1-a464-ab712d6d8327	Cephrenes augiades	(C. Felder, 1860)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hesperiidae	Cephrenes	Orange Palm-dart
https://biodiversity.org.au/afd/taxa/38d46ddf-c4c9-47e9-bc2f-040cad0b8bc7	Ceratitis capitata	(Wiedemann, 1824)	species	Animalia	Arthropoda	Insecta	Diptera	Tephritidae	Ceratitis	Medfly
https://biodiversity.org.au/afd/taxa/20cf2b3c-3f38-4110-8c9f-32da03484256	Cercartetus concinnus	(Gould, 1845)	species	Animalia	Chordata	Mammalia	Diprotodontia	Burramyidae	Cercartetus	Western Pygmy-possum
https://biodiversity.org.au/afd/taxa/d6156ed3-bda2-42d6-a948-07d94c7e6559	Chalcites basalis	(Horsfield, 1821)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Chalcites	Horsfield's Bronze-cuckoo
https://biodiversity.org.au/afd/taxa/99e4518d-7877-46c8-a809-7e4e4d5bad81	Chalcites lucidus	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Chalcites	Shining Bronze-cuckoo
https://biodiversity.org.au/afd/taxa/737198bf-0ca6-43e1-a428-f9e0f257f5c3	Chalcites osculans	Gould, 1847	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Chalcites	Black-eared Cuckoo
https://biodiversity.org.au/afd/taxa/f2ecb3e3-a6e2-45cc-a986-716a69eec650	Chalinolobus gouldii	(J.E. Gray, 1841)	species	Animalia	Chordata	Mammalia	Chiroptera	Vespertilionidae	Chalinolobus	Gould's Wattled Bat
https://biodiversity.org.au/afd/taxa/9cc11ab9-ab7a-43d6-a04f-3ae4c7a1a42a	Charadrius (Charadrius) ruficapillus	Temminck, 1821	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Charadrius	Red-capped Plover
https://biodiversity.org.au/afd/taxa/d5fa53d4-fa08-4a7c-8e2b-9af1ad816098	Cheilodactylus rubrolabiatus	Allen & Heemstra, 1976	species	Animalia	Chordata	Actinopterygii	Perciformes	Cheilodactylidae	Cheilodactylus	Red Lip Morwong
https://biodiversity.org.au/afd/taxa/27653d1b-205d-4cc4-931e-3a5396332ee7	Cheilomenes sexmaculata	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Cheilomenes	
https://biodiversity.org.au/afd/taxa/967549e7-7fa9-4770-b86e-5e3520d3c43d	Chelodina (Macrochelodina) oblonga	Gray, 1841	species	Animalia	Chordata	Reptilia	Testudines	Chelidae	Chelodina	Northern Snake-necked Turtle
https://biodiversity.org.au/afd/taxa/57815553-1b85-49b5-a46d-035c0a35622f	Chelodina (Macrodiremys) colliei	Gray, 1856	species	Animalia	Chordata	Reptilia	Testudines	Chelidae	Chelodina	South-western Long-necked Turtle

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/7954bd26-ddb3-4e7e-823c-4a692b7bde74	Chenonetta jubata	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Chenonetta	Australian Wood Duckmaned Goose
https://biodiversity.org.au/afd/taxa/5851a3f8-4962-477f-bd38-4f86473472f5	Cheramoeca leucosterna	(Gould, 1841)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Cheramoeca	White-backed Swallow
https://biodiversity.org.au/afd/taxa/8ce899d0-e1ad-4646-a161-6fe48388abbc	Cherax quinquecarinatus	(Gray, 1845)	species	Animalia	Arthropoda	Malacostraca	Decapoda	Parastacidae	Cherax	Djilgi
https://biodiversity.org.au/afd/taxa/383daf29-74b1-40b1-9014-51bbf3af8898	Chlidonias (Chlidonias) leucopterus	(Temminck, 1815)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Chlidonias	White-winged Tern
https://biodiversity.org.au/afd/taxa/5f44995b-559b-4dea-a30d-e3f2adf17f8c	Chlidonias (Pelodes) hybrida	(Pallas, 1811)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Chlidonias	Whiskered Tern
https://biodiversity.org.au/afd/taxa/0fc44003-1617-4f53-baff-1be37f0141c4	Chloroclystis insigillata	(Walker, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Chloroclystis	
https://biodiversity.org.au/afd/taxa/6fb68c16-26f1-47c3-b69d-d36ad34ba80a	Choreutis ophiosema	(Lower, 1896)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Choreutidae	Choreutis	
https://biodiversity.org.au/afd/taxa/5d1f294c-d87a-4644-84ca-fe1f160902db	Chortoicetes terminifera	(Walker, 1870)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Chortoicetes	Australian Plague Locust
https://biodiversity.org.au/afd/taxa/f5f5b062-43f9-436d-ae93-8dcdcb7f71c6	Christinus marmoratus	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Gekkonidae	Christinus	Marbled Gecko
https://biodiversity.org.au/afd/taxa/e2070aa5-7ab4-41a8-9b41-b3f0c2e26390	Chroicocephalus novaehollandiae	(Stephens, 1826)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Chroicocephalus	Silver Gull
NZOR-6-34659	Chrysococcyx lucidus	Gmelin	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Chalcites	Shining Cuckoo
https://biodiversity.org.au/afd/taxa/c524b7c0-f8ab-45a0-9579-3a90209b95e1	Chrysodeixis eriosoma	(Doubleday, 1843)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Chrysodeixis	
https://biodiversity.org.au/afd/taxa/c568921e-f800-4a6e-b88c-6d409def1e20	Circus approximans	Peale, 1848	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Circus	Australasian Harrier
https://biodiversity.org.au/afd/taxa/694a8fde-c6b1-4947-bae1-801541614999	Circus assimilis	Jardine & Selby, 1828	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Circus	Spotted Harrier
https://biodiversity.org.au/afd/taxa/1288a458-1631-40e5-837d-fd286679f866	Cladorhynchus leucocephalus	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Charadriiformes	Recurvirostridae	Cladorhynchus	Banded Stilt
https://biodiversity.org.au/afd/taxa/de840853-a3a3-4ec5-9dc0-7f12680a054f	Climacteris (Climacteris) rufus	Gould, 1841	species	Animalia	Chordata	Aves	Passeriformes	Climacteridae	Climacteris	Rufous Treecreeper
https://biodiversity.org.au/afd/taxa/d560c2ba-faff-4973-a2d1-f4dbcf06bbf0	Clogmia albipunctata	(Williston, 1893)	species	Animalia	Arthropoda	Insecta	Diptera	Psychodidae	Clogmia	
https://biodiversity.org.au/afd/taxa/0a67a6d3-0b35-4031-ab17-1bd26373329e	Clynotis severus	(L. Koch, 1879)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Clynotis	
https://biodiversity.org.au/afd/taxa/1351b437-2eb5-4949-990b-b18eb45252af	Coccinella transversalis	Fabricius, 1781	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Coccinella	Transverse Ladybird
https://biodiversity.org.au/afd/taxa/1b8ec366-b012-4c39-b47b-c2c53ac2b4a7	Cochlicella acuta	(MÃ¼ller, 1774)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Hygromiidae	Cochlicella	
https://biodiversity.org.au/afd/taxa/f9317593-94c1-49d3-aadb-df26a1c924da	Coelophora inaequalis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Coelophora	
https://biodiversity.org.au/afd/taxa/7af45089-4a0f-4303-a417-1708623809af	Colluricincla (Colluricincla) harmonica	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Colluricincla	Grey Shrike-thrush
https://biodiversity.org.au/afd/taxa/bf8abc11-ebe1-4f1a-9950-805e5bfcf90a	Columba (Columba) livia	Gmelin, 1789	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Columba	Rock Pigeon
https://biodiversity.org.au/afd/taxa/522a22ec-3318-4e17-97e7-8d8af150146b	Coptotermes michaelseni	Silvestri, 1909	species	Animalia	Arthropoda	Insecta	Blattodea	Rhinotermitidae	Coptotermes	
https://biodiversity.org.au/afd/taxa/69c22b10-ff42-4bef-bb0f-88dc01a8f96c	Coracina (Coracina) novaehollandiae	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Campephagidae	Coracina	Black-faced Cuckoo-shrike
https://biodiversity.org.au/afd/taxa/5091a2b2-7b67-4dc5-b4a0-cbe271c9aa0c	Cornu apertus	(Born, 1778)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Helicidae	Cornu	
https://biodiversity.org.au/afd/taxa/386cdd45-1e01-4224-82b5-935fe3a7bb80	Cornu aspersum	(MÃ¼ller, 1774)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Helicidae	Cornu	
https://biodiversity.org.au/afd/taxa/351ef0f8-f560-43d6-b784-f393edb97df9	Corvus bennetti	North, 1901	species	Animalia	Chordata	Aves	Passeriformes	Corvidae	Corvus	Little Crow
https://biodiversity.org.au/afd/taxa/8117f68b-5460-4626-8400-e171464e08ad	Corvus coronoides	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Passeriformes	Corvidae	Corvus	Australian Raven
https://biodiversity.org.au/afd/taxa/3f192e7c-5eec-4696-9bc7-68211c69f473	Coryphistes ruricola	(Burmeister, 1838)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Coryphistes	Bark-mimicking Grasshopper
https://biodiversity.org.au/afd/taxa/d5a8bde0-f56a-4af9-962a-d168b3e3308b	Coturnix (Coturnix) pectoralis	Gould, 1837	species	Animalia	Chordata	Aves	Galliformes	Phasianidae	Coturnix	Grey Quail
https://biodiversity.org.au/afd/taxa/0f5df411-17dd-4719-91de-158fb1a77b27	Cracticus nigrogularis	(Gould, 1837)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Cracticus	Pied Butcherbird
https://biodiversity.org.au/afd/taxa/681ea214-3788-4cc6-8b97-0b325d6bba6b	Cracticus torquatus	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Cracticus	Grey Butcherbird
https://biodiversity.org.au/afd/taxa/ee90eb32-3d7c-41d6-8bf6-3ffda1ad8b9b	Crinia georgiana	Tschudi, 1838	species	Animalia	Chordata	Amphibia	Anura	Myobatrachidae	Crinia	Tschudi's Froglet
https://biodiversity.org.au/afd/taxa/5f46e9da-17dd-4e0c-add0-79c61b9f616a	Crinia glauerti	Loveridge, 1933	species	Animalia	Chordata	Amphibia	Anura	Myobatrachidae	Crinia	Glauert's Froglet
https://biodiversity.org.au/afd/taxa/0446dbe0-12c9-4a5e-a65b-b0b59c673089	Crinia insignifera	Moore, 1954	species	Animalia	Chordata	Amphibia	Anura	Myobatrachidae	Crinia	Sign-bearing Froglet
https://biodiversity.org.au/afd/taxa/c5958968-7dfb-4e0c-bba2-2b8cb620aa8f	Crocothemis nigrifrons	(Kirby, 1894)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Crocothemis	
https://biodiversity.org.au/afd/taxa/ecf50dcc-855c-466b-8233-981041cde573	Crustulina bicruciata	Simon, 1908	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Crustulina	
https://biodiversity.org.au/afd/taxa/d7b2b8ef-9597-4048-9265-7c456b5ba90c	Crypsiphona ocultaria	(Donovan, 1805)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Crypsiphona	
https://biodiversity.org.au/afd/taxa/18544c24-739f-4323-aaa0-e41b9e558d9b	Cryptachaea veruculata	(Urquhart, 1886)	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Cryptachaea	
https://biodiversity.org.au/afd/taxa/1142a7e2-ff49-4b09-9e2b-50587ce05801	Cryptoblepharus buchananii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Cryptoblepharus	Buchananâ€™s Snake-eyed Skink
https://biodiversity.org.au/afd/taxa/e5f4f8c5-7236-4408-bc0c-64e2fa1f724b	Cryptocheilus australis	(GuÃ©rin-MÃ©neville, 1838)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Pompilidae	Cryptocheilus	
https://biodiversity.org.au/afd/taxa/dcfa9fe8-e80a-4dd4-98f9-34f87aac6049	Cryptolaemus montrouzieri	Mulsant, 1853	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Cryptolaemus	
https://biodiversity.org.au/afd/taxa/d32ba5d4-cf49-4577-a478-691307ec7d6e	Cryptophlebia ombrodelta	(Lower, 1898)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tortricidae	Cryptophlebia	
https://biodiversity.org.au/afd/taxa/5dcbb866-60f4-462a-a597-d3e46c28fa2e	Ctenochares bicolorus	(Linnaeus, 1767)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Ichneumonidae	Ctenochares	
https://biodiversity.org.au/afd/taxa/71f334b1-42bb-4ea3-bcfd-3262ea069946	Ctenophorus adelaidensis	(Gray, 1841)	species	Animalia	Chordata	Reptilia	Squamata	Agamidae	Ctenophorus	Western Heath Dragon
https://biodiversity.org.au/afd/taxa/4fbec7b1-d763-484f-b5c3-f169b192cbb0	Ctenotus australis	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Ctenotus	Western Limestone Ctenotus
https://biodiversity.org.au/afd/taxa/3e61a01b-0ec9-4383-9540-b97bd073fc7a	Ctenotus inornatus	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Ctenotus	Bar-shouldered Ctenotus
https://biodiversity.org.au/afd/taxa/0a0a01dd-f096-42b5-8efd-f65f96a8915c	Cuspicona simplex	Walker, 1867	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Cuspicona	Green Potato Bug
https://biodiversity.org.au/afd/taxa/f83c15ca-4ff5-4c37-be49-ce49a431f0ca	Cygnus (Chenopis) atratus	(Latham, 1790)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Cygnus	Black Swan
https://biodiversity.org.au/afd/taxa/4f1a9c5c-89a3-470c-bed4-aba21f5db224	Cygnus olor	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Cygnus	Mute Swan
https://biodiversity.org.au/afd/taxa/fae9cb67-45a7-4adf-bb03-90afc3a9bccc	Cylindraustralia kochii	de Saussure, 1877	species	Animalia	Arthropoda	Insecta	Orthoptera	Cylindrachetidae	Cylindraustralia	
https://biodiversity.org.au/afd/taxa/a5586a6c-0767-43a2-ba0e-03329d2d8582	Cyphastrea serailia	(ForsskÃ¥l, 1775)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae	Cyphastrea	Stony Coral
https://biodiversity.org.au/afd/taxa/16171fac-8d6c-4327-9fab-f2db864d71bf	Cyprinus carpio	Linnaeus, 1758	species	Animalia	Chordata	Actinopterygii	Cypriniformes	Cyprinidae	Cyprinus	European Carp
https://biodiversity.org.au/afd/taxa/1fc76c4d-4830-4129-9b86-1c7e944c3c50	Dacelo (Dacelo) novaeguineae	(Hermann, 1783)	species	Animalia	Chordata	Aves	Coraciiformes	Alcedinidae	Dacelo	Kookaburra
https://biodiversity.org.au/afd/taxa/57fcbc39-071b-4a1f-bb6c-2e607919b357	Danaus chrysippus	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Danaus	Lesser Wanderer
https://biodiversity.org.au/afd/taxa/e24dc381-5c20-4580-b2ed-695fefce2622	Danaus plexippus	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Danaus	Wanderer
https://biodiversity.org.au/afd/taxa/5583a462-2966-4ded-81e5-8d954f1f0adb	Daphnia carinata	King, 1853	species	Animalia	Arthropoda	Branchiopoda	Diplostraca	Daphniidae	Daphnia	Water Flea
https://biodiversity.org.au/afd/taxa/8bf4b8b0-f432-4e9d-8ea6-08fc20c8090c	Daphoenositta (Neositta) chrysoptera	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Neosittidae	Daphoenositta	Varied Sittella
https://biodiversity.org.au/afd/taxa/dd33af1e-19e7-4fcd-9485-8726d84a664e	Darwinocoris australicus	Slater, 1962	species	Animalia	Arthropoda	Insecta	Hemiptera	Pachygronthidae	Darwinocoris	
https://biodiversity.org.au/afd/taxa/a0018d4e-df6e-45fa-aebc-8512f1e6b06b	Dasyhesma abnormis	(Rayment, 1935)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Colletidae	Dasyhesma	
https://biodiversity.org.au/afd/taxa/c63b023d-4808-47a8-a34e-1296d04fbf08	Deinopis subrufa	L. Koch, 1878	species	Animalia	Arthropoda	Arachnida	Araneae	Deinopidae	Deinopis	
https://biodiversity.org.au/afd/taxa/4487770a-883d-4850-8a8d-381d3faf1752	Delta bicinctum	(Saussure, 1852)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Delta	
https://biodiversity.org.au/afd/taxa/8ff04785-58d1-4944-984a-1703df7d7375	Delta latreillei	(Saussure, 1852)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Delta	
https://biodiversity.org.au/afd/taxa/08d400a0-e576-44dc-8177-325f028a5a65	Dendrocygna arcuata	Horsfield, 1824	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Dendrocygna	Wandering Whistling-duck
https://biodiversity.org.au/afd/taxa/4c090066-4275-40a6-b815-7b1a2649860b	Dendrocygna eytoni	(Eyton, 1838)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Dendrocygna	Plumed Whistling-duck
https://biodiversity.org.au/afd/taxa/242bc8a7-ecf6-43b9-9f6b-3d459a6bb362	Diatenes aglossoides	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Diatenes	

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/8f2d4aeb-50eb-438f-a145-5f12e356ffd8	Dicaeum (Dicaeum) hirundinaceum	(Shaw, 1792)	species	Animalia	Chordata	Aves	Passeriformes	Dicaeidae	Dicaeum	Mistletoebird
https://biodiversity.org.au/afd/taxa/8c01d140-5b21-4efc-ab92-a3e78c7bbce5	Diphucrania leucosticta	(Kirby, 1818)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/78cbe563-aca0-4f15-bb1f-90400540451d	Diphucrania macmillani	(Barker, 2001)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/c1f2ea28-9306-40b8-9fa0-d5c4f5c34ccc	Diphucrania parva	(Blackburn, 1887)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/0519208b-fe23-41e0-ab67-e1320ab89d30	Diphucrania stigmata	(Gory & Laporte, 1839)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/a064e0ce-9140-4ab1-a143-bacc1835e9ee	Diphucrania tyrrhena	(Carter, 1923)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/c5c8ad7b-da8b-4918-bb9d-b8973fb40ebf	Diphucrania viridipurpurea	(Carter, 1924)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Diphucrania	
https://biodiversity.org.au/afd/taxa/c437f86d-edcd-44c3-b2f7-4fda1d11b316	Diplacodes bipunctata	(Brauer, 1865)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Diplacodes	
https://biodiversity.org.au/afd/taxa/0c6260a5-59f2-4feb-8372-db2138b29fc3	Diplacodes haematodes	(Burmeister, 1839)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Diplacodes	
https://biodiversity.org.au/afd/taxa/6af1d88c-2087-4e3c-a9c2-760ac1c626ea	Diplodactylus polyophthalmus	GÃ¼nther, 1867	species	Animalia	Chordata	Reptilia	Squamata	Diplodactylidae	Diplodactylus	Spotted Sandplain Gecko
https://biodiversity.org.au/afd/taxa/4f6119da-111a-4e8b-ba84-512cc0d3be2c	Distoleon bistrigatus	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Neuroptera	Myrmeleontidae	Distoleon	
https://biodiversity.org.au/afd/taxa/6ef0726a-fb7c-4816-829d-54c2b1a80845	Dolichoderus ypsilon	Forel, 1902	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Dolichoderus	
https://biodiversity.org.au/afd/taxa/8e07995d-e488-4e25-80c9-d16a3248ef56	Donuca spectabilis	Walker, 1865	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Donuca	
https://biodiversity.org.au/afd/taxa/4084ab92-7a98-420a-a1da-fbb5b970006d	Drymaplaneta semivitta	(Walker, 1868)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae	Drymaplaneta	
https://biodiversity.org.au/afd/taxa/4fb80e54-ced0-4d93-a646-b2a2dfcc6f1d	Earias huegeliana	Gaede, 1938	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nolidae	Earias	
https://biodiversity.org.au/afd/taxa/ec418eef-eaed-4456-8da5-bc1062159509	Echiopsis curta	(Schlegel, 1837)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Echiopsis	Bardick
https://biodiversity.org.au/afd/taxa/b97f2ef9-6728-4916-b96e-dfcabe0461e1	Echthromorpha intricatoria	(Fabricius, 1804)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Ichneumonidae	Echthromorpha	
https://biodiversity.org.au/afd/taxa/e53bf0ab-d0aa-468b-bcbc-26a7ac911110	Ecnolagria aeneoviolacea	(Champion, 1895)	species	Animalia	Arthropoda	Insecta	Coleoptera	Tenebrionidae	Ecnolagria	
https://biodiversity.org.au/afd/taxa/54448cb9-8772-4726-a138-71cb1837eec5	Egernia kingii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Egernia	King's Skink
https://biodiversity.org.au/afd/taxa/05d7e54c-47b8-4157-b7ea-8f2596772905	Egernia napoleonis	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Egernia	South-western Crevice-skink
https://biodiversity.org.au/afd/taxa/37b96920-e8bf-499c-9967-b6911fedff51	Egretta garzetta	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Egretta	Lesser Egret
https://biodiversity.org.au/afd/taxa/8fd1977b-9edf-4ddf-b6cf-24a09db4d18c	Egretta novaehollandiae	(Latham, 1790)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Egretta	Matuka
https://biodiversity.org.au/afd/taxa/c650dca9-69e3-4051-ace8-86444b0ee972	Egretta sacra	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Egretta	Blue Heron
https://biodiversity.org.au/afd/taxa/e382a431-801d-4a24-9a5a-03a262be9279	Elanus axillaris	(Latham, 1801)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Elanus	Black-shouldered Kite
https://biodiversity.org.au/afd/taxa/db8bfaee-c833-4457-8702-837e953428f4	Ellipsidion humerale	(Tepper, 1893)	species	Animalia	Arthropoda	Insecta	Blattodea	Ectobiidae	Ellipsidion	
https://biodiversity.org.au/afd/taxa/29cbe213-85a4-46b7-b373-4c503231f299	Elseyornis melanops	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Elseyornis	Black-fronted Dotterel
https://biodiversity.org.au/afd/taxa/52fd72bc-6152-47cc-864e-5a57115771f9	Endoxyla cinereus	(Tepper, 1890)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Cossidae	Endoxyla	
https://biodiversity.org.au/afd/taxa/ea7087ca-2b95-4b8b-bbef-3090be7a9a96	Entometa fervens	(Walker, 1855)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lasiocampidae	Entometa	
https://biodiversity.org.au/afd/taxa/9b4ad548-8bb3-486a-ab0a-905506c463ea	Eolophus roseicapilla	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Eolophus	Galah
https://biodiversity.org.au/afd/taxa/c95af018-43ab-43b8-8e14-037604db64f6	Epthianura (Epthianura) albifrons	(Jardine & Selby, 1828)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Epthianura	White-fronted Chat
https://biodiversity.org.au/afd/taxa/b36d55fa-8f6a-4673-a162-e04d6d008d18	Eriophora transmarina	(Keyserling, 1865)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Eriophora	
https://biodiversity.org.au/afd/taxa/1ed45f0a-8a3a-4a7e-8eca-43a86fb1688c	Erythrogonys cinctus	Gould, 1838	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Erythrogonys	Red-kneed Dotterel
https://biodiversity.org.au/afd/taxa/5d937df2-e9dc-43a1-b829-2087ca5529ff	Ethmostigmus rubripes	(Brandt, 1840)	species	Animalia	Arthropoda	Chilopoda	Scolopendromorpha	Scolopendridae	Ethmostigmus	
https://biodiversity.org.au/afd/taxa/65987854-1f1a-4e18-b0b4-25a6042b1339	Euphronarcha leptodesma	(Meyrick, 1892)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Euphronarcha	
https://biodiversity.org.au/afd/taxa/854374fc-be37-402f-8bd1-114b78dfc2b5	Euryattus bleekeri	(Doleschall, 1859)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Euryattus	
https://biodiversity.org.au/afd/taxa/e1702f13-8a42-4d55-8307-4ee07c1a3f0c	Euzosteria femoralis	(Walker, 1868)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae	Euzosteria	
https://biodiversity.org.au/afd/taxa/8989b7ed-4d42-4784-9a8d-7756e36ae55c	Exarna includens	Walker, 1870	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Exarna	
https://biodiversity.org.au/afd/taxa/70a29d57-3aea-43e3-b675-98c01960979d	Falco (Falco) longipennis	Swainson, 1838	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Falco	Australian Hobby
https://biodiversity.org.au/afd/taxa/083b413f-8746-4788-8dc1-3da495d78a79	Falco (Hierofalco) peregrinus	Tunstall, 1771	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Falco	Duck Hawk
https://biodiversity.org.au/afd/taxa/0628244e-287b-4001-946e-5a41ef056f41	Falco (Ieracidea) berigora	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Falco	Chicken Hawk
https://biodiversity.org.au/afd/taxa/8f6b91ae-4019-490c-a133-73acb05d25e8	Falco (Tinnunculus) cenchroides	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Falconiformes	Falconidae	Falco	Wala
https://biodiversity.org.au/afd/taxa/88ab4486-1ae6-4179-b62e-163fc33fd95f	Falcunculus frontatus	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Falcunculidae	Falcunculus	Crested Shrike-tit
https://biodiversity.org.au/afd/taxa/dc2918a1-3d48-4628-b156-cf38c14c6c97	Faveria tritalis	(Walker, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Faveria	
https://biodiversity.org.au/afd/taxa/7de6b16a-f854-4b4b-88cf-81868ce74ad8	Felis catus	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Carnivora	Felidae	Felis	Cat
https://biodiversity.org.au/afd/taxa/bb53b420-0a1f-4a49-9d1e-2a6154c685a8	Fulica atra	Linnaeus, 1758	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Fulica	Eurasian Coot
https://biodiversity.org.au/afd/taxa/b5e44fea-a0a2-412b-a1f7-476b3c1e8e03	Gallinula (Gallinula) tenebrosa	Gould, 1846	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Gallinula	Dusky Moorhen
NZOR-6-24112	Gallirallus philippensis	Linnaeus	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Gallirallus	
ALA_DR654_5_1	Gallirallus philippensis		species	Animalia				Birds	Gallirallus	
https://biodiversity.org.au/afd/taxa/e96c4568-a10f-4ea9-a741-a551b1f22bc1	Gambusia holbrooki	Girard, 1859	species	Animalia	Chordata	Actinopterygii	Cyprinodontiformes	Poeciliidae	Gambusia	Top Minnow
https://biodiversity.org.au/afd/taxa/0f7d9921-1e32-4204-aa7e-ec15e8043a32	Gastrimargus musicus	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Gastrimargus	Yellow-winged Locust
https://biodiversity.org.au/afd/taxa/7ef23364-cb69-4935-84da-98752b8f835e	Gastrinodes argoplaca	(Meyrick, 1892)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Gastrinodes	
https://biodiversity.org.au/afd/taxa/6ccdb357-d666-4097-b0f6-88bb1a392112	Gavicalis virescens	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Gavicalis	Singing Honeyeater
https://biodiversity.org.au/afd/taxa/80c876b2-0b7c-48cb-9273-2f207af3654d	Geitoneura klugii	(GuÃ©rin-MÃ©neville, 1830)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Geitoneura	Klug's Xenica
https://biodiversity.org.au/afd/taxa/c875d96f-82a1-459b-ac49-35057cfa0e70	Geitoneura minyas	(Waterhouse & Lyell, 1914)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Geitoneura	Western Xenica
https://biodiversity.org.au/afd/taxa/72b23d0a-7050-413f-9100-3562d383888e	Gelochelidon nilotica	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Gelochelidon	Gull-billed Tern
https://biodiversity.org.au/afd/taxa/14833a25-6e9d-4651-bbf3-2163de7e1252	Geopelia cuneata	(Latham, 1801)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Geopelia	Diamond Dove
https://biodiversity.org.au/afd/taxa/75e90438-cf36-403e-9223-a7d4737b1fd1	Gerygone fusca	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Gerygone	Fuscous Warbler
https://biodiversity.org.au/afd/taxa/140b779e-ba1c-4310-afc3-7c80c9bb0a29	Glenbalodectes amaroo	Rentz, 1985	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae	Glenbalodectes	
https://biodiversity.org.au/afd/taxa/f0a6a2c3-adad-4c57-9cae-17956131ecf0	Gliciphila melanops	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Gliciphila	Tawny-crowned Honeyeater
https://biodiversity.org.au/afd/taxa/b07aed34-2184-4ce6-b8f3-106e477c7eb1	Glycyphana (Glycyphaniola) stolata	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	Glycyphana	
https://biodiversity.org.au/afd/taxa/30dfcca6-8f44-4913-b8ad-0dda0533b8be	Goniaea australasiae	(Leach, 1814)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Goniaea	Gumleaf Grasshopper
24432010	Goniobranchus tinctorius	(RÃ¼ppell & Leuckart, 1828)	species	Animalia	Mollusca	Gastropoda	Nudibranchia	Chromodoridae	Goniobranchus	Nudibranch
https://biodiversity.org.au/afd/taxa/d8013c80-f75c-4e4e-951b-690e7298bb28	Gonocephalum elderi	(Blackburn, 1892)	species	Animalia	Arthropoda	Insecta	Coleoptera	Tenebrionidae	Gonocephalum	
https://biodiversity.org.au/afd/taxa/ce17b284-d607-496a-992f-f3129bfd3997	Grallina cyanoleuca	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Monarchidae	Grallina	Magpie-lark
https://biodiversity.org.au/afd/taxa/4c642a6d-3dd9-41bd-bd6d-79c981d9c197	Gryllotalpa pluvialis	(MjÃ¶berg, 1913)	species	Animalia	Arthropoda	Insecta	Orthoptera	Gryllotalpidae	Gryllotalpa	
https://biodiversity.org.au/afd/taxa/af814ab2-db65-43ef-8f19-dd19283eb47e	Gymnodoris ceylonica	(Kelaart, 1858)	species	Animalia	Mollusca	Gastropoda	Nudibranchia	Polyceridae	Gymnodoris	Nudibranch
https://biodiversity.org.au/afd/taxa/5291343e-fdeb-4a65-8ba5-928f5b96acf5	Gymnorhina tibicen	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Gymnorhina	Australian Magpie
https://biodiversity.org.au/afd/taxa/ef87b7c8-6d07-4ff7-b373-b0270c0eb99d	Gyromantis occidentalis	SjÃ¶stedt, 1918	species	Animalia	Arthropoda	Insecta	Mantodea	Amorphoscelidae	Gyromantis	
https://biodiversity.org.au/afd/taxa/dc420306-4746-4663-9c2d-cf367587f728	Haliaeetus (Pontoaetus) leucogaster	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Haliaeetus	White-bellied Sea-eagle
https://biodiversity.org.au/afd/taxa/31113d80-ed4f-4bb0-9a65-48080e4c6dd1	Haliastur sphenurus	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Haliastur	Whistling Eagle-hawk

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/aecd711c-3d66-42a5-b574-8f20b974fc1a	Halobaena caerulea	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Halobaena	Blue Petrel
https://biodiversity.org.au/afd/taxa/7de2660b-e39a-4c85-9512-bec18c5f82fc	Harmonia conformis	(Boisduval, 1835)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Harmonia	
https://biodiversity.org.au/afd/taxa/cf991494-ccee-433d-b049-f2a0996a0a3b	Heleioporus eyrei	(Gray, 1845)	species	Animalia	Chordata	Amphibia	Anura	Limnodynastidae	Heleioporus	Moaning Frog
https://biodiversity.org.au/afd/taxa/643c69f3-d060-4f65-a48a-e8d8466aa60b	Helicoverpa armigera	(HÃ¼bner, 1808)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Helicoverpa	
https://biodiversity.org.au/afd/taxa/146ff01aa-333f-4744-a8a2-f90a8e9c6050	Hellula hydralis	GuenÃ©e, 1854	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Hellula	
https://biodiversity.org.au/afd/taxa/1e5668f8-6a29-4400-8f8f-ca514ce65ebf	Helpis occidentalis	Simon, 1909	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Helpis	
https://biodiversity.org.au/afd/taxa/dc82b1ff-960b-4fcb-a782-2cbb54d47af0	Hemicordulia australiae	(Rambur, 1842)	species	Animalia	Arthropoda	Insecta	Odonata	Corduliidae	Hemicordulia	
https://biodiversity.org.au/afd/taxa/b89f6072-46a2-4c1f-a417-fd45ee4d5c3f	Hemicordulia tau	(Selys, 1871)	species	Animalia	Arthropoda	Insecta	Odonata	Corduliidae	Hemicordulia	
https://biodiversity.org.au/afd/taxa/61a869f0-313f-4d13-a592-4e506dac73fe	Hemidactylus frenatus	DumÃ©ril & Bibron, 1836	species	Animalia	Chordata	Reptilia	Squamata	Gekkonidae	Hemidactylus	House Gecko
https://biodiversity.org.au/afd/taxa/630adc1f-a781-4aed-9785-ac67078ffd06	Hemiergis quadrilineata	(DumÃ©ril & Bibron, 1839)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Hemiergis	Two-toed Earless Skink
https://biodiversity.org.au/afd/taxa/8426dc76-c05f-4f13-8749-463821b74928	Hermetia illucens	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Diptera	Stratiomyidae	Hermetia	
https://biodiversity.org.au/afd/taxa/63f90170-118f-4b12-8330-63d61ca6ae53	Herpetogramma licarsisalis	(Walker, 1859)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Herpetogramma	
https://biodiversity.org.au/afd/taxa/efe4e6eb-c17e-49e9-9516-a2b47a708e51	Heterocerus simillimus	Charpentier, 1968	species	Animalia	Arthropoda	Insecta	Coleoptera	Heteroceridae	Heterocerus	
https://biodiversity.org.au/afd/taxa/8af934d1-3d47-4d4a-aac6-0d7ed64745b7	Heteronympha merope	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Heteronympha	Common Brown
https://biodiversity.org.au/afd/taxa/e948fd99-7550-4d1b-866a-75666cc61f96	Heteroscenes pallidus	(Latham, 1801)	species	Animalia	Chordata	Aves	Cuculiformes	Cuculidae	Heteroscenes	Pallid Cuckoo
https://biodiversity.org.au/afd/taxa/4bed54f3-9d5a-4c64-aede-195eb191b30a	Heterotermes occiduus	(Hill, 1927)	species	Animalia	Arthropoda	Insecta	Blattodea	Rhinotermitidae	Heterotermes	
https://biodiversity.org.au/afd/taxa/b47a4ecd-416b-458c-886a-1dc3490e8175	Hieraaetus (Hieraaetus) morphnoides	(Gould, 1841)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Hieraaetus	Little Eagle
https://biodiversity.org.au/afd/taxa/ae8ff359-0981-4618-86a8-e64fb63b7adc	Himantopus himantopus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Recurvirostridae	Himantopus	Pied Stilt
https://biodiversity.org.au/afd/taxa/f44f30a7-f6ed-4479-bb61-98f932701328	Hippodamia variegata	(Goeze, 1777)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Hippodamia	
https://biodiversity.org.au/afd/taxa/d9061bb7-6e32-4e47-bb5c-ebd6f1919ec0	Hippotion celerio	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Sphingidae	Hippotion	
https://biodiversity.org.au/afd/taxa/4e118c73-06a7-4131-bd67-5da5d2d61fd7	Hirundo (Hirundo) neoxena	Gould, 1843	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Hirundo	Welcome Swallow
https://biodiversity.org.au/afd/taxa/1611ee09-cd2e-41ef-a40b-77a28693e6c1	Hogna crispipes	(L. Koch, 1877)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Hogna	
https://biodiversity.org.au/afd/taxa/61c83128-fc72-426f-95e0-15b870528c22	Homalictus (Homalictus) dotatus	(Cockerell, 1912)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Halictidae	Homalictus	
https://biodiversity.org.au/afd/taxa/9baa55f2-69c1-486c-91f7-f96e58b7c945	Hydromys chrysogaster	Geoffroy, 1804	species	Animalia	Chordata	Mammalia	Rodentia	Muridae	Hydromys	Rakali
https://biodiversity.org.au/afd/taxa/da1e1bf2-3684-4eea-b579-1d83507c020d	Hydroprogne caspia	(Pallas, 1770)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Hydroprogne	Caspian Tern
https://biodiversity.org.au/afd/taxa/7685fef2-1975-4417-b16a-91f991c9bee0	Hylaeus (Euprosopis) violaceus	(Smith, 1853)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Colletidae	Hylaeus	
https://biodiversity.org.au/afd/taxa/13884e3b-e8bc-4e0f-b96f-89b608db7a98	Hylaeus (Euprosopoides) ruficeps	(Smith, 1853)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Colletidae	Hylaeus	
https://biodiversity.org.au/afd/taxa/ae509348-06f3-46a2-b661-4094a62bfb46	Hylaeus (Macrohylaeus) alcyoneus	(Erichson, 1842)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Colletidae	Hylaeus	
https://biodiversity.org.au/afd/taxa/aedfe517-8a70-4b16-9ca6-c315056998b9	Hypoblemum griseum	(Keyserling, 1882)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Hypoblemum	
https://biodiversity.org.au/afd/taxa/17f426a5-514d-4598-9b10-660366eb3c45	Hypoblemum scutulatum	(L. Koch, 1881)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Hypoblemum	
https://biodiversity.org.au/afd/taxa/f0d2deda-1c2a-44ab-b81e-b469e4e15eac	Hypochrysops halyaetus	Hewitson, 1874	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Hypochrysops	Western Jewel
https://biodiversity.org.au/afd/taxa/c8fba3e6-d5f4-4dcf-adef-03c04d15fb1b	Ichneumon promissorius	(Erichson, 1842)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Ichneumonidae	Ichneumon	
https://biodiversity.org.au/afd/taxa/3965ccbe-1b54-44b2-a8de-2039b2227ba1	Idaea inversata	(GuenÃ©e, 1857)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Idaea	
https://biodiversity.org.au/afd/taxa/259086df-3dba-4f1c-989c-356eb82a056d	Idiodes idiocrossa	(Turner, 1947)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Idiodes	
https://biodiversity.org.au/afd/taxa/d925c055-ee20-46ad-80b1-f0ca0f5f5416	Idiosoma sigillatum	(O.P.-Cambridge, 1870)	species	Animalia	Arthropoda	Arachnida	Araneae	Idiopidae	Idiosoma	Swan Coastal Plain Shield-backed Trapdoor Spider
https://biodiversity.org.au/afd/taxa/78106ae5-509d-4ab5-aac9-74f23b8ed9ca	Iridonyssus formicans	Raven, 2015	species	Animalia	Arthropoda	Arachnida	Araneae	Corinnidae	Iridonyssus	
https://biodiversity.org.au/afd/taxa/eba0227f-f618-41b7-b5f6-1e4041ae1d5c	Ischnura aurora	(Brauer, 1865)	species	Animalia	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura	
https://biodiversity.org.au/afd/taxa/de3bdeb9-41ec-4566-b676-9a1bfb579362	Ischnura heterosticta	(Burmeister, 1839)	species	Animalia	Arthropoda	Insecta	Odonata	Coenagrionidae	Ischnura	
https://biodiversity.org.au/afd/taxa/7ab4afa0-70ec-4a57-8429-7299ea4440eb	Isoodon fusciventer	(J.E. Gray, 1841)	species	Animalia	Chordata	Mammalia	Peramelemorphia	Peramelidae	Isoodon	Quenda
https://biodiversity.org.au/afd/taxa/0fbb8f1e-ec6d-4b65-a663-7387c91c68bf	Isoodon obesulus	(Shaw, 1797)	species	Animalia	Chordata	Mammalia	Peramelemorphia	Peramelidae	Isoodon	Southern Brown Bandicoot
https://biodiversity.org.au/afd/taxa/260436e4-342d-4e7d-b2a3-f26003586d04	Isopeda leishmanni	Hogg, 1903	species	Animalia	Arthropoda	Arachnida	Araneae	Sparassidae	Isopeda	
https://biodiversity.org.au/afd/taxa/fe350402-4500-445a-8642-352b148b375d	Isopedella cerussata	(Simon, 1908)	species	Animalia	Arthropoda	Arachnida	Araneae	Sparassidae	Isopedella	
https://biodiversity.org.au/afd/taxa/20938676-d287-43d7-a887-a15fbb3ff6bb	Ixobrychus dubius	Mathews, 1912	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Ixobrychus	Minute Bittern
https://biodiversity.org.au/afd/taxa/c27d2d2d-1c9f-4f42-8d04-3097e30a2562	Junonia villida	(Fabricius, 1787)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Junonia	Meadow Argus
https://biodiversity.org.au/afd/taxa/bf8d2470-6c86-4483-b695-51fa1a373ec1	Kalotermes aemulus	Sewell & Gay, 1978	species	Animalia	Arthropoda	Insecta	Blattodea	Kalotermitidae	Kalotermes	
https://biodiversity.org.au/afd/taxa/3cf02a11-d525-4d6c-a8ef-8d82162a7cee	Kalotermes hilli	Emerson in Snyder, 1949	species	Animalia	Arthropoda	Insecta	Blattodea	Kalotermitidae	Kalotermes	
https://biodiversity.org.au/afd/taxa/92358f59-80ae-482f-8979-5679b23e92cc	Lalage (Lalage) tricolor	(Swainson, 1825)	species	Animalia	Chordata	Aves	Passeriformes	Campephagidae	Lalage	Australian White-winged Triller
https://biodiversity.org.au/afd/taxa/fa583a97-e6a2-44f7-965e-9b65e126589c	Lampides boeticus	(Linnaeus, 1767)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Lampides	Pea Blue
https://biodiversity.org.au/afd/taxa/0c9c95dc-9442-49f4-bad4-8fff86cfd033	Lampona murina	L. Koch, 1873	species	Animalia	Arthropoda	Arachnida	Araneae	Lamponidae	Lampona	
https://biodiversity.org.au/afd/taxa/0cbb688f-7d9c-4d2b-9956-844e71d1cd80	Lampropholis delicata	(De Vis, 1888)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Lampropholis	Dark-flecked Garden Sunskink
https://biodiversity.org.au/afd/taxa/68f71798-b3ab-47f5-856e-0ae4c8dcb478	Lampropholis guichenoti	(DumÃ©ril & Bibron, 1839)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Lampropholis	Pale-flecked Garden Sunskink
https://biodiversity.org.au/afd/taxa/6666bf89-da47-4595-ac09-2019e23bb4d2	Lantanophaga pusillidactylus	(Walker, 1864)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pterophoridae	Lantanophaga	Lantana Plume Moth
https://biodiversity.org.au/afd/taxa/4cb195fd-b127-44cb-ad85-a62d224e9a96	Lathamus discolor	(Shaw, 1790)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Lathamus	Swift Parrot
https://biodiversity.org.au/afd/taxa/c7d8dbc8-dcde-4182-85ba-907182f95ea9	Latrodectus hasseltii	Thorell, 1870	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Latrodectus	Jockey Spider
https://biodiversity.org.au/afd/taxa/78c96276-bff1-43f7-a8e5-fbca2249965b	Leptocneria reducta	(Walker, 1855)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Leptocneria	
https://biodiversity.org.au/afd/taxa/4b0423aa-6a0a-4707-8d48-9c66e48941bf	Lerista elegans	(Gray, 1845)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Lerista	Elegant Slider
https://biodiversity.org.au/afd/taxa/ba8626ed-e049-42e5-81e3-4f8efd8fad32	Lerista praepedita	(Boulenger, 1887)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Lerista	Blunt-tailed West-coast Slider
https://biodiversity.org.au/afd/taxa/f4bdd4ee-47b1-4aa2-b359-81ae94e17269	Leucania diatrecta	Butler, 1886	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Leucania	
https://biodiversity.org.au/afd/taxa/a379f319-061a-4b98-8387-ad1c748802d3	Leucania uda	GuenÃ©e, 1852	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Leucania	
https://biodiversity.org.au/afd/taxa/b17388f8-4468-4a91-b434-659bf3739561	Lialis burtonis	Gray, 1835	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Lialis	Burton's Snake-lizard
https://biodiversity.org.au/afd/taxa/ada6105e-c2de-4b93-9687-8e64d10863a7	Lichmera (Lichmera) indistincta	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Lichmera	Brown Honeyeater
https://biodiversity.org.au/afd/taxa/ac5ce2ed-f580-4aa7-a037-690b9f9fbf99	Limnodynastes dorsalis	(Gray, 1841)	species	Animalia	Chordata	Amphibia	Anura	Limnodynastidae	Limnodynastes	Western Banjo Frog
NZOR-6-23572	Limosa haemastica	Linnaeus	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Limosa	Hudsonian Godwit
https://biodiversity.org.au/afd/taxa/0068714f-cc38-49e8-9541-7ff0e796b5f9	Limosa lapponica	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Limosa	Bar-tailed Godwit
https://biodiversity.org.au/afd/taxa/70b173fb-a9cc-4b73-a9ee-598d1b5289a6	Limosa limosa	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Limosa	Black-tailed Godwit
https://biodiversity.org.au/afd/taxa/96dd7eb9-d9d1-4083-a454-cc473fffe1c9	Lipotriches (Austronomia) flavoviridis	(Cockerell, 1905)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Halictidae	Lipotriches	
https://biodiversity.org.au/afd/taxa/9e602831-9ffb-4491-83bb-fafcf96fc3fe	Lissopimpla excelsa	(Costa, 1864)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Ichneumonidae	Lissopimpla	
https://biodiversity.org.au/afd/taxa/cfed1332-ab8f-4009-8949-90aa3630ba67	Litoria adelaidensis	(Gray, 1841)	species	Animalia	Chordata	Amphibia	Anura	Hylidae	Litoria	Slender Tree Frog

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/d0e897bb-e6f5-4654-a511-1c30ef95cd35	Litoria ewingii	(DumÃ©ril & Bibron, 1841)	species	Animalia	Chordata	Amphibia	Anura	Hylidae	Litoria	Ewing's Tree Frog
https://biodiversity.org.au/afd/taxa/2f87aff4-450a-41a7-afe3-5f1423236b68	Litoria moorei	(Copland, 1957)	species	Animalia	Chordata	Amphibia	Anura	Hylidae	Litoria	Motorbike Frog
https://biodiversity.org.au/afd/taxa/715a2874-1942-4762-866c-1194990e7a91	Lophoictinia isura	(Gould, 1838)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Lophoictinia	Square-tailed Kite
https://biodiversity.org.au/afd/taxa/4f8d196e-6b81-44cb-beeb-64cd15c2ae19	Lychas marmoreus	(C.L. Koch, 1845)	species	Animalia	Arthropoda	Arachnida	Scorpiones	Buthidae	Lychas	
https://biodiversity.org.au/afd/taxa/c927f294-dc00-4574-89bc-68a48f6585a4	Macronectes giganteus	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Macronectes	Southern Giant-petrel
https://biodiversity.org.au/afd/taxa/7a402ec9-f9f3-46f4-9cb1-701e0188c921	Macropus fuliginosus	(Desmarest, 1817)	species	Animalia	Chordata	Mammalia	Diprotodontia	Macropodidae	Macropus	Western Grey Kangaroo
https://biodiversity.org.au/afd/taxa/c4f41076-0399-4eef-aa13-d7e29112f52f	Macrotona picta	(SjÃ¶stedt, 1920)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Macrotona	
https://biodiversity.org.au/afd/taxa/dc27b757-21bc-4e0b-becb-4e2849070215	Malacorhynchus membranaceus	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Malacorhynchus	Pink-eared Duck
https://biodiversity.org.au/afd/taxa/5c9d12e2-698b-4384-ac91-e83842a263aa	Malurus (Leggeornis) assimilis	North, 1901	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Malurus	
https://biodiversity.org.au/afd/taxa/73c6d4f8-6aeb-4978-9d9c-a229e5629d51	Malurus (Leggeornis) lamberti	Vigors & Horsfield, 1827	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Malurus	Variegated Fairy-wren
https://biodiversity.org.au/afd/taxa/702a989c-9e87-40d5-9694-e6b94dc6521e	Malurus (Malurus) splendens	(Quoy & Gaimard, 1830)	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Malurus	Splendid Fairy-wren
https://biodiversity.org.au/afd/taxa/41cdea6a-9c0f-4b64-b59c-53822470a4da	Malurus (Musciparus) leucopterus	Dumont, 1824	species	Animalia	Chordata	Aves	Passeriformes	Maluridae	Malurus	White-winged Fairy-wren
https://biodiversity.org.au/afd/taxa/5c0d591a-0a98-48c6-8a4b-f925d43521cd	Manorina (Myzantha) flavigula	(Gould, 1840)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Manorina	Yellow-throated Miner
https://biodiversity.org.au/afd/taxa/957797f3-97b6-4d28-b9c0-3ed3efe27b39	Maratus chrysomelas	(Simon, 1909)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Maratus	
https://biodiversity.org.au/afd/taxa/08f00850-a369-4ecf-bf74-0212ef725382	Maratus clupeatus	Otto & Hill, 2014	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Maratus	
https://biodiversity.org.au/afd/taxa/1f701f08-4aed-4edf-a45e-1d18a659182f	Maratus pavonis	(Dunn, 1947)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Maratus	
https://biodiversity.org.au/afd/taxa/1bb11b35-17f2-4202-960a-1fc29e5c36f6	Maratus spicatus	Otto & Hill, 2012	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Maratus	
https://biodiversity.org.au/afd/taxa/710a4262-4733-4db6-959a-1e9660dc7581	Mauropteron pelago	(Walker, 1849)	species	Animalia	Arthropoda	Insecta	Diptera	Asilidae	Mauropteron	
https://biodiversity.org.au/afd/taxa/4bff5ae8-c3d5-443f-8103-7d32270ea7ff	Megachile (Hackeriapis) tosticauda	Cockerell, 1912	species	Animalia	Arthropoda	Insecta	Hymenoptera	Megachilidae	Megachile	
https://biodiversity.org.au/afd/taxa/f4bad98b-a1fe-449c-95c9-575972fa43d0	Megachile aurifrons	Smith, 1853	species	Animalia	Arthropoda	Insecta	Hymenoptera	Megachilidae	Megachile	
https://biodiversity.org.au/afd/taxa/0925387e-5964-4117-9edd-8fe6f31b2141	Megachile rugosa	Smith, 1879	species	Animalia	Arthropoda	Insecta	Hymenoptera	Megachilidae	Megachile	
https://biodiversity.org.au/afd/taxa/4574c573-e2ea-4ae0-99d0-fe2dd5d88a5c	Melanerythrus mactans	(StÃ¥l, 1866)	species	Animalia	Arthropoda	Insecta	Hemiptera	Lygaeidae	Melanerythrus	
https://biodiversity.org.au/afd/taxa/623f0c55-e927-42a7-b0e6-220fec9d9691	Melangyna (Austrosyrphus) viridiceps	(Macquart, 1847)	species	Animalia	Arthropoda	Insecta	Diptera	Syrphidae	Melangyna	
https://biodiversity.org.au/afd/taxa/bdcc0acc-980a-4f51-b8c0-85447ce59bea	Melithreptus (Eidopsarus) brevirostris	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Melithreptus	Brown-headed Honeyeater
https://biodiversity.org.au/afd/taxa/95efb4b0-67a8-4093-8bda-d55b2fa836be	Melithreptus (Melithreptus) lunatus	(Vieillot, 1802)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Melithreptus	White-naped Honeyeater
https://biodiversity.org.au/afd/taxa/391bfdca-d8db-4629-952f-c2dd34e53dac	Melobasis costifera	Thomson, 1879	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/26271d50-30a1-457f-8ff5-f987231964bd	Melobasis gloriosa	(Laporte & Gory, 1837)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/ce8a3b07-0dae-4be2-9ecc-666abb2f85fd	Melobasis lathami	(Laporte & Gory, 1837)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/4f8b5ff2-d37e-43a0-a12d-90cea2e26efb	Melobasis melanura	Kerremans, 1898	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/15ac1f99-0fec-48d0-8f0c-361627400ce3	Melobasis rectipilosa	Levey, 2012	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/0a1b22e4-3ae9-4034-b180-060d09de40f8	Melobasis superba	(Laporte & Gory, 1837)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/0bbc9844-172f-48d1-a721-cd95fed98ce9	Melobasis wannerua	Carter, 1936	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Melobasis	
https://biodiversity.org.au/afd/taxa/ada5e2b7-1b23-410d-a3cf-1a81853a7de8	Menetia greyii	Gray, 1845	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Menetia	Common Dwarf Skink
https://biodiversity.org.au/afd/taxa/9f9ddea7-8c74-46df-8ed9-3233d681e354	Merops (Merops) ornatus	Latham, 1801	species	Animalia	Chordata	Aves	Coraciiformes	Meropidae	Merops	Rainbow Bee-eater
https://biodiversity.org.au/afd/taxa/5fb8f066-4b41-48be-a021-aa3ddf3ad2d5	Mesodina cyanophracta	Lower, 1911	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hesperiidae	Mesodina	Blue Iris-skipper
https://biodiversity.org.au/afd/taxa/873d2c48-f5fa-4f86-af6a-94afc82f86c7	Metallesthes metallescens	(White, 1859)	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	Metallesthes	
https://biodiversity.org.au/afd/taxa/0b7c528a-4104-4a96-853e-05a37c327067	Microcarbo melanoleucos	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Microcarbo	Little Cormorant
https://biodiversity.org.au/afd/taxa/5be359c8-dff8-4709-935e-db9c764cdda0	Micromus tasmaniae	(Walker, 1860)	species	Animalia	Arthropoda	Insecta	Neuroptera	Hemerobiidae	Micromus	
https://biodiversity.org.au/afd/taxa/de272308-a7fb-46cf-bcfd-1bc245862c9b	Mictis profana	(Fabricius, 1803)	species	Animalia	Arthropoda	Insecta	Hemiptera	Coreidae	Mictis	Crusader Bug
https://biodiversity.org.au/afd/taxa/46b7236e-c41f-4148-847b-31e64fc5c789	Milvus migrans	(Boddaert, 1783)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Milvus	Black Kite
https://biodiversity.org.au/afd/taxa/cdbe8a3c-5de0-4140-aadc-2f0b48806e33	Moloch horridus	Gray, 1841	species	Animalia	Chordata	Reptilia	Squamata	Agamidae	Moloch	Thorny Devil
https://biodiversity.org.au/afd/taxa/7a39c977-3c87-4d6d-842f-9844d0c9ccd7	Monopis meliorella	(Walker, 1863)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Tineidae	Monopis	
https://biodiversity.org.au/afd/taxa/e57c5e45-a109-49ff-9539-2b3d7583ced1	Morethia obscura	Storr, 1972	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Morethia	Shrubland Morethia Skink
https://biodiversity.org.au/afd/taxa/984bf7f3-3089-4e55-b494-a285eda21b1d	Motacilla (Budytes) tschutschensis	Gmelin, 1789	species	Animalia	Chordata	Aves	Passeriformes	Motacillidae	Motacilla	Eastern Yellow Wagtail
https://biodiversity.org.au/afd/taxa/47cfcaf1-588b-40bf-ad99-790019adb433	Motacilla (Motacilla) alba	Linnaeus, 1758	species	Animalia	Chordata	Aves	Passeriformes	Motacillidae	Motacilla	White Wagtail
https://biodiversity.org.au/afd/taxa/107696b5-063c-4c09-a015-6edfdb6f4d52	Mus musculus	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Rodentia	Muridae	Mus	House Mouse
https://biodiversity.org.au/afd/taxa/28663829-709e-4dc3-99c1-7ce68b4c1e8b	Musgraveia sulciventris	(StÃ¥l, 1863)	species	Animalia	Arthropoda	Insecta	Hemiptera	Tessaratomidae	Musgraveia	Bronze Orange Bug
https://biodiversity.org.au/afd/taxa/824f963d-e953-410a-806b-b9a27f3d29af	Myandra cambridgei	Simon, 1887	species	Animalia	Arthropoda	Arachnida	Araneae	Prodidomidae	Myandra	
https://biodiversity.org.au/afd/taxa/53a524b5-6952-4063-8916-bdfba2c8119c	Myobatrachus gouldii	(Gray, 1841)	species	Animalia	Chordata	Amphibia	Anura	Myobatrachidae	Myobatrachus	Turtle Frog
https://biodiversity.org.au/afd/taxa/2cd037cd-2ba7-44bd-b038-84d3b009f2eb	Myrmecia swalei	Crawley, 1922	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Myrmecia	
https://biodiversity.org.au/afd/taxa/5f189fad-a439-4ac6-aad5-cf40afc9b570	Myrmecia urens	Lowne, 1865	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Myrmecia	
https://biodiversity.org.au/afd/taxa/dc38b13f-aca3-4e90-9420-607582807260	Nacaduba biocellata	(C. & R. Felder, 1865)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Nacaduba	Two-spotted Line-blue
https://biodiversity.org.au/afd/taxa/6388c877-2bde-4fd9-8fb0-067ae333e79b	Nacoleia rhoeoalis	(Walker, 1859)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Nacoleia	
https://biodiversity.org.au/afd/taxa/fb69e0c6-9da9-4c8b-aee8-3f342207b1ad	Nannophya occidentalis	(Tillyard, 1908)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Nannophya	
https://biodiversity.org.au/afd/taxa/8b1eb1bb-9fdb-4ef7-b2a3-2874072c7b07	Neelaps bimaculatus	(DumÃ©ril, Bibron & DumÃ©ril, 1854)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Neelaps	Black-naped Snake
https://biodiversity.org.au/afd/taxa/ef82ba0e-0d48-447e-963d-40517d3b25f9	Neelaps calonotus	(DumÃ©ril, Bibron & DumÃ©ril, 1854)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Neelaps	Black-striped Burrowing Snake
https://biodiversity.org.au/afd/taxa/8df2d882-0a1b-4ca0-b408-096835562d3f	Neohavinthus pentatoma	(Herrich-Schaeffer, 1853)	species	Animalia	Arthropoda	Insecta	Hemiptera	Reduviidae	Neohavinthus	
https://biodiversity.org.au/afd/taxa/d3e1f2df-ce9b-4e42-ab17-ac74aa0e954c	Neolucia agricola	(Westwood, 1851)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Neolucia	Fringed Blue
https://biodiversity.org.au/afd/taxa/908e6ef4-de96-4951-a603-cb62caae6fdc	Neophema (Neonanodes) elegans	(Gould, 1838)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Neophema	Elegant Parrot
https://biodiversity.org.au/afd/taxa/9b190353-676e-459b-b184-f0aefaaa130c	Neorhaphiomidas pallida	Paramonov, 1953	species	Animalia	Arthropoda	Insecta	Diptera	Mydidae	Neorhaphiomidas	
https://biodiversity.org.au/afd/taxa/a4afa011-fe07-48bb-bbea-184758594291	Nephila edulis	(LabillardiÃ¨re, 1799)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Nephila	Australian Golden Orb-weaving Spider
https://biodiversity.org.au/afd/taxa/3836f177-b016-45c5-a682-c1c8aae350f3	Nephila pilipes	(Fabricius, 1793)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Nephila	Giant Golden Orb-weaving Spider
https://biodiversity.org.au/afd/taxa/b9255d27-58e0-4a8b-9ac8-854c1ad1a741	Nephrotoma australasiae	(Skuse, 1890)	species	Animalia	Arthropoda	Insecta	Diptera	Tipulidae	Nephrotoma	
https://biodiversity.org.au/afd/taxa/4fdb76e6-ca81-472e-b4bf-a05844ab45bd	Nettapus (Cheniscus) pulchellus	Gould, 1842	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Nettapus	Green Goose
https://biodiversity.org.au/afd/taxa/f13d3116-25ed-439c-bb75-531a94bd77d0	Neuroctenus transitus	Monteith, 1997	species	Animalia	Arthropoda	Insecta	Hemiptera	Aradidae	Neuroctenus	
https://biodiversity.org.au/afd/taxa/68fc5ba7-463f-4a86-8314-e42a5a8d0455	Ninox (Ninox) boobook	(Latham, 1801)	species	Animalia	Chordata	Aves	Strigiformes	Strigidae	Ninox	
https://biodiversity.org.au/afd/taxa/856ed4e8-dbcf-487f-80c8-9c78591d2ff6	Ninox (Ninox) novaeseelandiae	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Strigiformes	Strigidae	Ninox	Southern Boobook
https://biodiversity.org.au/afd/taxa/183540dd-a37f-4feb-9720-c417cfb4c9f9	Notechis scutatus	(Peters, 1861)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Notechis	Tiger Snake

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/5ff29bca-f02f-468f-9f96-9ae956015e01	Numenius (Numenius) madagascariensis	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Numenius	Far Eastern Curlew
https://biodiversity.org.au/afd/taxa/dec8c88f-7f20-4f30-b2af-c75d09fb066c	Nycticorax caledonicus	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Ciconiiformes	Ardeidae	Nycticorax	Crane
https://biodiversity.org.au/afd/taxa/7b31b043-a8c7-4e48-9681-dcea0569d8db	Nyssus coloripes	Walckenaer, 1805	species	Animalia	Arthropoda	Arachnida	Araneae	Corinnidae	Nyssus	
https://biodiversity.org.au/afd/taxa/a7b00ef0-108f-44d9-bf89-a062c8674335	Ocyphaps lophotes	(Temminck, 1822)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Ocyphaps	Crested Pigeon
https://biodiversity.org.au/afd/taxa/889675fb-39f7-4eb5-82d7-ea43ea29aed3	Oecetis pechana	Mosely, 1953	species	Animalia	Arthropoda	Insecta	Trichoptera	Leptoceridae	Oecetis	
https://biodiversity.org.au/afd/taxa/d8af29b8-05d6-451a-ac51-ba27f3aa07b7	Oecobius navus	Blackwall, 1859	species	Animalia	Arthropoda	Arachnida	Araneae	Oecobiidae	Oecobius	
https://biodiversity.org.au/afd/taxa/a3e148b8-2a20-4d4b-8467-ac7d27fd15d9	Oenochroma vinaria	GuenÃ©e, 1857	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Oenochroma	
https://biodiversity.org.au/afd/taxa/6e61b4ab-a84f-42e7-ad78-d2f84c02d3bb	Ommatoiulus moreleti	(Lucas, 1860)	species	Animalia	Arthropoda	Diplopoda	Julida	Julidae	Ommatoiulus	
https://biodiversity.org.au/afd/taxa/bafbcdad-417a-4445-9e62-52503d9306e1	Onthophagus flavoapicalis	Lea, 1923	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	Onthophagus	
https://biodiversity.org.au/afd/taxa/7a054f56-4679-4ca7-a123-1cc7aa5bdf36	Onthophagus haagi	Harold, 1867	species	Animalia	Arthropoda	Insecta	Coleoptera	Scarabaeidae	Onthophagus	
https://biodiversity.org.au/afd/taxa/4d0af7f5-3488-4b72-a15e-d817eaf5d597	Ophiusa tirhaca	(Cramer, 1777)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Erebidae	Ophiusa	
https://biodiversity.org.au/afd/taxa/744ae7f0-50cd-4e5f-8397-e503da681267	Opisthoncus nigrofemoratus	(L. Koch, 1867)	species	Animalia	Arthropoda	Arachnida	Araneae	Salticidae	Opisthoncus	
https://biodiversity.org.au/afd/taxa/0cfe0945-3377-4d01-b379-1913bfa39e3e	Opopaea framenaui	Baehr & Harvey, 2013	species	Animalia	Arthropoda	Arachnida	Araneae	Oonopidae	Opopaea	
https://biodiversity.org.au/afd/taxa/3426a025-fc39-4433-be23-eb7f034ddd3d	Opopaea gracillima	Baehr & Harvey, 2013	species	Animalia	Arthropoda	Arachnida	Araneae	Oonopidae	Opopaea	
https://biodiversity.org.au/afd/taxa/86025a5e-4aed-4d45-9a15-98521d3c6407	Opopaea rixi	Baehr & Harvey, 2013	species	Animalia	Arthropoda	Arachnida	Araneae	Oonopidae	Opopaea	
https://biodiversity.org.au/afd/taxa/4ecf88e7-9368-4163-9d00-bf14eed98f3e	Orcus australasiae	(Boisduval, 1835)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Orcus	
https://biodiversity.org.au/afd/taxa/e427115f-dc9d-4c32-bd07-131b9ab64300	Oreoica gutturalis	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Oreoicidae	Oreoica	Crested Bellbird
https://biodiversity.org.au/afd/taxa/ba72b1cb-a2f8-431c-b75c-b15494851978	Orthetrum caledonicum	(Brauer, 1865)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Orthetrum	
https://biodiversity.org.au/afd/taxa/4df73026-423d-4a0f-a9c5-cb82f319167f	Orthodera ministralis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Mantodea	Mantidae	Orthodera	Green Mantid
https://biodiversity.org.au/afd/taxa/f93a76aa-784e-4539-bc0d-2a5bd16a5293	Oxyopes amoenus	L. Koch, 1878	species	Animalia	Arthropoda	Arachnida	Araneae	Oxyopidae	Oxyopes	
https://biodiversity.org.au/afd/taxa/32f9229c-89e9-4dbe-991b-d4b1c2cfbe97	Oxyura australis	Gould, 1837	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Oxyura	Blue-billed Duck
https://biodiversity.org.au/afd/taxa/378bdcd1-f52a-4907-9f71-0541b05437da	Pachycephala (Alisterornis) rufiventris	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Pachycephala	Rufous Whistler
https://biodiversity.org.au/afd/taxa/30edbd1a-6367-4d84-87f1-3566e6cc54d6	Pachycephala (Pachycephala) pectoralis	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Pachycephalidae	Pachycephala	Golden Whistler
https://biodiversity.org.au/afd/taxa/477786c2-49d7-416f-b629-ac556f0af0c0	Pachyptila desolata	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Procellariiformes	Procellariidae	Pachyptila	Antarctic Prion
https://biodiversity.org.au/afd/taxa/de179f89-9593-4f0a-bdc0-d3945e9e01c9	Pachysaga australis	(Walker, 1869)	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae	Pachysaga	
https://biodiversity.org.au/afd/taxa/9cf77e85-2c45-4f6a-bb26-e2a0919debaf	Palaemonetes australis	Dakin, 1915	species	Animalia	Arthropoda	Malacostraca	Decapoda	Palaemonidae	Palaemonetes	
https://biodiversity.org.au/afd/taxa/23a8017a-3a2b-4a52-8ca6-d168bf52659c	Pandion haliaetus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Accipitriformes	Accipitridae	Pandion	Osprey
https://biodiversity.org.au/afd/taxa/84c88105-75fc-45f9-a467-47d092e76b33	Paragia oligomera	Snelling, 1986	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Paragia	
https://biodiversity.org.au/afd/taxa/b5e7d396-d457-4617-872b-37019f4db5e4	Paragoniastrea australensis	(Milne Edwards, 1857)	species	Animalia	Cnidaria	Anthozoa	Scleractinia	Merulinidae	Paragoniastrea	Stony Coral
https://biodiversity.org.au/afd/taxa/e3103245-2da1-4cc5-952d-49153f466bbf	Pardalotus (Pardalotinus) striatus	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Passeriformes	Pardalotidae	Pardalotus	Striated Pardalote
https://biodiversity.org.au/afd/taxa/5254fe03-630b-44b2-9233-df51a7b8f25f	Pardalotus (Pardalotus) punctatus	(Shaw, 1792)	species	Animalia	Chordata	Aves	Passeriformes	Pardalotidae	Pardalotus	Spotted Pardalote
https://biodiversity.org.au/afd/taxa/a2399fe3-c90f-4fb1-a710-fe81643ff56e	Parvipsitta porphyrocephala	(Dietrichsen, 1837)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Parvipsitta	Purple-crowned Lorikeet
https://biodiversity.org.au/afd/taxa/33702f89-60b2-4098-9cb0-20180783514d	Passer (Passer) domesticus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Passeriformes	Passeridae	Passer	House Sparrow
https://biodiversity.org.au/afd/taxa/52f3c1c6-8e4f-4ade-b0f7-17890169efb2	Pavo cristatus	Linnaeus, 1758	species	Animalia	Chordata	Aves	Galliformes	Phasianidae	Pavo	Peafowl
https://biodiversity.org.au/afd/taxa/2d85e882-a404-4087-a909-206abf8c455a	Peakesia brunnea	(White, 1841)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Peakesia	
https://biodiversity.org.au/afd/taxa/43abe3ea-7ccc-41cc-920f-d9cfa107207e	Pelecanus conspicillatus	Temminck, 1824	species	Animalia	Chordata	Aves	Pelecaniformes	Pelecanidae	Pelecanus	Australian Pelican
https://biodiversity.org.au/afd/taxa/79984cb9-958f-4b5b-a89d-b264af10a1fa	Periplaneta americana	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae	Periplaneta	American Cockroach
https://biodiversity.org.au/afd/taxa/7d38efed-12ce-4aa3-b51a-67f89b109ded	Petrochelidon (Hylochelidon) nigricans	(Vieillot, 1817)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Petrochelidon	Tree Martin
https://biodiversity.org.au/afd/taxa/f29f01e6-0bfe-4621-b068-42dac6c758dc	Petrochelidon (Petrochelidon) ariel	(Gould, 1842)	species	Animalia	Chordata	Aves	Passeriformes	Hirundinidae	Petrochelidon	Fairy Martin
https://biodiversity.org.au/afd/taxa/a3e5376b-f9e6-4bdf-adae-1e7add9f5c29	Petroica (Petroica) boodang	(Lesson, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Petroicidae	Petroica	Scarlet Robin
https://biodiversity.org.au/afd/taxa/10dbd908-00f3-4ec2-9a9c-a2fd4782eaf1	Petroica (Petroica) goodenovii	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Petroicidae	Petroica	Red-capped Robin
https://biodiversity.org.au/afd/taxa/29472c00-22e3-42c3-b562-107bd28d1bdc	Phalacrocorax (Phalacrocorax) carbo	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Phalacrocorax	Great Cormorant
https://biodiversity.org.au/afd/taxa/c96b19fd-2a54-4361-a5cf-baecf741310e	Phalacrocorax (Phalacrocorax) sulcirostris	(Brandt, 1837)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Phalacrocorax	Little Black Cormorant
https://biodiversity.org.au/afd/taxa/55994a9e-8ba7-4ff9-89a2-e22586ab25d1	Phalacrocorax (Phalacrocorax) varius	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Pelecaniformes	Phalacrocoracidae	Phalacrocorax	Black-and-white Shag
https://biodiversity.org.au/afd/taxa/7da6fd6f-c180-4e68-b9e7-70d02e6f8448	Phaps (Phaps) chalcoptera	(Latham, 1790)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Phaps	Common Bronzewing
https://biodiversity.org.au/afd/taxa/32ec77e9-568d-4b0f-a380-5dcffbe2b95a	Phaulacridium crassum	Key, 1992	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Phaulacridium	
https://biodiversity.org.au/afd/taxa/8899ed59-044b-4ae8-a741-0c29bedb7975	Phaulacridium vittatum	(SjÃ¶stedt, 1920)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Phaulacridium	Wingless Grasshopper
https://biodiversity.org.au/afd/taxa/195e9b1a-84e5-44e3-86bc-5e783b2ba250	Pheidole megacephala	(Fabricius, 1793)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Pheidole	
https://biodiversity.org.au/afd/taxa/0cf87549-56ab-44a0-9dae-98a9152228d6	Pholcus phalangioides	(Fuesslin, 1775)	species	Animalia	Arthropoda	Arachnida	Araneae	Pholcidae	Pholcus	
https://biodiversity.org.au/afd/taxa/0b7db155-ac36-4263-b113-95f6fbec19c8	Phonognatha graeffei	(Keyserling, 1865)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Phonognatha	
https://biodiversity.org.au/afd/taxa/bf610eb5-3521-4788-87ee-a5315edd986a	Phoracantha semipunctata	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae	Phoracantha	
https://biodiversity.org.au/afd/taxa/4e971936-cff5-4877-a113-b5bd5f07d28a	Phrissogonus laticostata	(Walker, 1862)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Geometridae	Phrissogonus	
https://biodiversity.org.au/afd/taxa/4437613f-3906-418f-90ba-57c0d5c6c3bd	Phryganoporus nigrinus	Simon, 1908	species	Animalia	Arthropoda	Arachnida	Araneae	Desidae	Phryganoporus	
https://biodiversity.org.au/afd/taxa/148208ff-e6ea-40bd-9999-9f1a6b8acc1e	Phylidonyris (Meliornis) niger	(Bechstein, 1811)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Phylidonyris	White-cheeked Honeyeater
https://biodiversity.org.au/afd/taxa/da002998-b551-4328-ac4e-5e04fc72708b	Phylidonyris (Meliornis) novaehollandiae	(Latham, 1790)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Phylidonyris	New Holland Honeyeater
https://biodiversity.org.au/afd/taxa/934ecab5-798d-45b9-bade-16b3380d08a0	Pieris rapae	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pieridae	Pieris	Cabbage White Butterfly
https://biodiversity.org.au/afd/taxa/24c21411-d78c-415d-a848-f0abb83b615a	Platalea (Platalea) regia	Gould, 1838	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Platalea	Royal Spoonbill
https://biodiversity.org.au/afd/taxa/3dd39f84-1293-4c04-ac87-2474f5c887b0	Platalea (Platibis) flavipes	Gould, 1838	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Platalea	Yellow-legged Spoonbill
https://biodiversity.org.au/afd/taxa/12efe8e2-13c3-4551-8c7c-2fd6923b0d9e	Platycercus (Violania) icterotis	(Temminck & Kuhl, 1820)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Platycercus	Western Rosella
https://biodiversity.org.au/afd/taxa/a5f83a90-288d-4f93-ad46-5a6e3018da19	Plebs cyphoxis	(Simon, 1908)	species	Animalia	Arthropoda	Arachnida	Araneae	Araneidae	Plebs	
https://biodiversity.org.au/afd/taxa/da100481-e4a7-4d6e-8535-89a748cf52ad	Plegadis falcinellus	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Plegadis	Black Curlew
https://biodiversity.org.au/afd/taxa/86a747d6-737e-4005-a1ad-a16ca71c181e	Plesiastrea versipora	(Lamarck, 1816)	species	Animalia	Cnidaria	Anthozoa	Scleractinia		Plesiastrea	Stony Coral
https://biodiversity.org.au/afd/taxa/6617f80d-3f99-46d7-9567-534d79a98108	Pletholax gracilis	Cope, 1864	species	Animalia	Chordata	Reptilia	Squamata	Pygopodidae	Pletholax	Keeled Legless Lizard
https://biodiversity.org.au/afd/taxa/0e526884-3eb4-490c-9362-3eb8065ee0d4	Plutella xylostella	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Plutellidae	Plutella	
https://biodiversity.org.au/afd/taxa/5526c312-451f-4c90-a69e-088b55be6956	Pluvialis fulva	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Pluvialis	Pacific Golden Plover
https://biodiversity.org.au/afd/taxa/fd928615-5613-47eb-9cd4-7eb8e30a4993	Pluvialis squatarola	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Pluvialis	Grey Plover

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/ac48e985-2adb-4c1e-bce9-39906cf6761d	Podalonia tydei	(Le Guillou, 1841)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Sphecidae	Podalonia	
https://biodiversity.org.au/afd/taxa/8bec5cc6-ac31-4d23-9df3-856034968af9	Podargus strigoides	(Latham, 1801)	species	Animalia	Chordata	Aves	Caprimulgiformes	Podargidae	Podargus	Tawny Frogmouth
https://biodiversity.org.au/afd/taxa/91f0535a-f513-417d-9826-8294ae640785	Podiceps cristatus	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Podiceps	Crested Grebe
https://biodiversity.org.au/afd/taxa/b373ab3c-2a15-4644-b975-142dfecdb815	Poecilometis apicalis	(Westwood, 1837)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Poecilometis	
https://biodiversity.org.au/afd/taxa/8d657c07-f523-4139-bb3e-781a72fda714	Poecilometis punctiventris	(StÃ¥l, 1876)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Poecilometis	
https://biodiversity.org.au/afd/taxa/c7a9314a-100e-4138-b7de-7c6b86248be4	Poecilotoma grandicornis	(Erichson, 1842)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Poecilotoma	
https://biodiversity.org.au/afd/taxa/f777ebe8-250f-4b8e-9e25-b5944a2ea023	Pogona minor	(Sternfeld, 1919)	species	Animalia	Chordata	Reptilia	Squamata	Agamidae	Pogona	Dwarf Bearded Dragon
https://biodiversity.org.au/afd/taxa/947595db-244f-4160-b30d-0473b37d857b	Poliocephalus poliocephalus	(Jardine & Selby, 1827)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Poliocephalus	Hoary-headed Dabchick
https://biodiversity.org.au/afd/taxa/e27d813a-0e26-45c5-9396-687d368a2c37	Polistes (Polistella) humilis	(Fabricius, 1781)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Polistes	Common Paper Wasp
https://biodiversity.org.au/afd/taxa/3134a393-7059-4099-a417-45ff499e1836	Polistes (Polistella) stigma	(Fabricius, 1793)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Polistes	
https://biodiversity.org.au/afd/taxa/7fcc9d58-823e-4095-9ca2-512ef3b93e4b	Polistes (Polistes) dominulus	(Christ, 1791)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Polistes	
https://biodiversity.org.au/afd/taxa/fc20df8d-bf9b-461b-b4cd-0f33b3209529	Pollanisus empyrea	(Meyrick, 1888)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Zygaenidae	Pollanisus	
https://biodiversity.org.au/afd/taxa/171b0bfe-3afa-42bf-91ac-5cd85d3e43d1	Polytelis anthopeplus	(Lear, 1831)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Polytelis	Regent Parrot
https://biodiversity.org.au/afd/taxa/061fef09-7c9d-4b6d-9827-4da13a350dc6	Poodytes gramineus	(Gould, 1845)	species	Animalia	Chordata	Aves	Passeriformes	Locustellidae	Poodytes	Little Grassbird
https://biodiversity.org.au/afd/taxa/48cbf375-2e37-41df-80aa-57ac103a9068	Porcellio laevis	Latreille, 1804	species	Animalia	Arthropoda	Malacostraca	Isopoda	Porcellionidae	Porcellio	
https://biodiversity.org.au/afd/taxa/4f5be6a5-41c0-4b49-ba7f-e4d693bd01a5	Porcellio scaber	Latreille, 1804	species	Animalia	Arthropoda	Malacostraca	Isopoda	Porcellionidae	Porcellio	
https://biodiversity.org.au/afd/taxa/4eaee23a-9e11-42aa-ae9f-cd9a047450fc	Porcellionides pruinosus	(Brandt, 1833)	species	Animalia	Arthropoda	Malacostraca	Isopoda	Porcellionidae	Porcellionides	
https://biodiversity.org.au/afd/taxa/3dbe8a1f-e562-42ba-a165-565c0704f8f2	Porphyrio (Porphyrio) porphyrio	(Linnaeus, 1758)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Porphyrio	Purple Gallinule
https://biodiversity.org.au/afd/taxa/b7013071-0a6a-4fd7-a084-0b0d3f473828	Porzana (Porzana) fluminea	Gould, 1843	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Porzana	Spotted Crake
https://biodiversity.org.au/afd/taxa/50448703-93a6-4537-8ff7-719099b715be	Porzana (Porzana) pusilla	(Pallas, 1776)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Porzana	Marsh Crake
https://biodiversity.org.au/afd/taxa/fe7684ea-14e2-49e9-8953-dabc1543ce46	Porzana (Porzana) tabuensis	(Gmelin, 1789)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Porzana	Little Swamphen
https://biodiversity.org.au/afd/taxa/59d6e8e2-455e-4e8e-a1ca-fda928ae5f39	Procordulia affinis	(Selys, 1871)	species	Animalia	Arthropoda	Insecta	Odonata	Corduliidae	Procordulia	
https://biodiversity.org.au/afd/taxa/88df2bd3-f117-4961-a4f3-db8d9fde2510	Proscopiomima consobrina	(Rehn, 1952)	species	Animalia	Arthropoda	Insecta	Orthoptera	Morabidae	Proscopiomima	
https://biodiversity.org.au/afd/taxa/a9faef7e-2ce7-470b-b411-8a8f0c05114d	Proteuxoa coelenoptera	(Lower, 1915)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Proteuxoa	
https://biodiversity.org.au/afd/taxa/3e76ec1f-622b-452b-b556-904da60adea2	Pseudapines geminata	(Van Duzee, 1905)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Pseudapines	Pittosporum Bug
https://biodiversity.org.au/afd/taxa/dcf303b1-0371-4c8b-b431-c2e147941926	Pseudonaja affinis	GÃ¼nther, 1872	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Pseudonaja	Dugite
https://biodiversity.org.au/afd/taxa/92ffc2fa-6250-446f-a9b1-39261da0ad92	Pseudonaja mengdeni	Wells & Wellington, 1985	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Pseudonaja	Gwardar
https://biodiversity.org.au/afd/taxa/46d5eed0-3d80-4d46-9114-3ad170982193	Pseudosuccinea columella	(Say, 1817)	species	Animalia	Mollusca	Gastropoda		Lymnaeidae	Pseudosuccinea	Freshwater Snail
https://biodiversity.org.au/afd/taxa/5a264c77-a7d1-43ca-ae1f-233f59b175aa	Ptilotula ornata	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Ptilotula	Yellow-plumed Honeyeater
https://biodiversity.org.au/afd/taxa/daa188cc-adc2-4b8b-92e9-d8f4ee0b28d7	Ptilotula penicillata	(Gould, 1837)	species	Animalia	Chordata	Aves	Passeriformes	Meliphagidae	Ptilotula	White-plumed Honeyeater
https://biodiversity.org.au/afd/taxa/66f82bb4-ae71-4543-a99e-35452536c4c8	Purpureicephalus spurius	(Kuhl, 1820)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Purpureicephalus	Red-capped Parrot
https://biodiversity.org.au/afd/taxa/5c9ab00e-2da3-49d9-9979-651b2bd4eba3	Pyralis farinalis	Linnaeus, 1758	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Pyralis	
https://biodiversity.org.au/afd/taxa/4cc9abe1-8adf-4e83-bd7f-69c61f8a0cdc	Radumeris tasmaniensis	(Saussure, 1854)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Scoliidae	Radumeris	
https://biodiversity.org.au/afd/taxa/82df47de-1d49-4efc-acff-3f9e95a7a6a2	Ranatra dispar	Montandon, 1903	species	Animalia	Arthropoda	Insecta	Hemiptera	Nepidae	Ranatra	Needle Bug
https://biodiversity.org.au/afd/taxa/178a17ff-2135-48e8-856b-39f546f02092	Rattus rattus	(Linnaeus, 1758)	species	Animalia	Chordata	Mammalia	Rodentia	Muridae	Rattus	Black Rat
https://biodiversity.org.au/afd/taxa/c69e7308-527a-429d-a80d-143bd20b5100	Recurvirostra novaehollandiae	Vieillot, 1816	species	Animalia	Chordata	Aves	Charadriiformes	Recurvirostridae	Recurvirostra	Australian Red-necked Avocet
https://biodiversity.org.au/afd/taxa/97a59c84-af21-4cdc-bac7-a97c5201db42	Rhipidura (Rhipidura) albiscapa	Gould, 1840	species	Animalia	Chordata	Aves	Passeriformes	Rhipiduridae	Rhipidura	Grey Fantail
https://biodiversity.org.au/afd/taxa/48bd256d-536d-4ca8-96eb-950f17e80184	Rhipidura (Rhipidura) fuliginosa	(Sparrman, 1787)	species	Animalia	Chordata	Aves	Passeriformes	Rhipiduridae	Rhipidura	New Zealand Fantail
https://biodiversity.org.au/afd/taxa/1c4dce12-16f6-49ab-b578-0673551214fd	Rhipidura (Sauloprocta) leucophrys	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Rhipiduridae	Rhipidura	Willie Wagtail
https://biodiversity.org.au/afd/taxa/81aa2878-5c8c-45b1-9517-834a03e477ea	Rhytidoponera metallica	(Smith, 1858)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Rhytidoponera	
https://biodiversity.org.au/afd/taxa/01d752cb-ba3f-492c-8543-748ad216ed61	Rhytidoponera violacea	(Forel, 1907)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Formicidae	Rhytidoponera	
https://biodiversity.org.au/afd/taxa/753e5df4-6258-49c2-b36f-2378f2f3ab23	Rodolia cardinalis	(Mulsant, 1850)	species	Animalia	Arthropoda	Insecta	Coleoptera	Coccinellidae	Rodolia	
https://biodiversity.org.au/afd/taxa/b5452e9c-df1c-4b7e-9457-de0b9347f11c	Schuettea woodwardi	(Waite, 1905)	species	Animalia	Chordata	Actinopterygii	Perciformes	Monodactylidae	Schuettea	Western Pomfred
https://biodiversity.org.au/afd/taxa/b9beedbb-f0ae-4a13-91a9-9e5f42b411da	Scieropepla trinervis	(Meyrick, 1904)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Oecophoridae	Scieropepla	
https://biodiversity.org.au/afd/taxa/6863ec45-938b-42d5-b3a3-9f5c8d9ff791	Scolecobrotus westwoodii	Hope, 1833	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae	Scolecobrotus	
https://biodiversity.org.au/afd/taxa/031b2b69-e9fc-44c6-9df9-03c1470d5ec3	Sericornis (Sericornis) frontalis	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Sericornis	White-fronted Scrubwren
https://biodiversity.org.au/afd/taxa/07f61731-6c7a-440f-a01f-0c8956d31222	Sidymella trapezia	(L. Koch, 1874)	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Sidymella	
https://biodiversity.org.au/afd/taxa/c74464f4-57fd-4386-90fe-c68e1d629729	Simoselaps bertholdi	(Jan, 1859)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Simoselaps	Jan's Banded Snake
https://biodiversity.org.au/afd/taxa/09e007e5-22c5-44ff-9654-4bcf4f1fcdb4	Simosyrphus grandicornis	(Macquart, 1842)	species	Animalia	Arthropoda	Insecta	Diptera	Syrphidae	Simosyrphus	
https://biodiversity.org.au/afd/taxa/f933497e-60d2-4f80-bc5e-08d8b1349c2c	Smicrornis brevirostris	(Gould, 1838)	species	Animalia	Chordata	Aves	Passeriformes	Acanthizidae	Smicrornis	Brown Weebill
https://biodiversity.org.au/afd/taxa/683021bb-2474-40ac-8ef1-8e0386c192b6	Solaenodolichopus pruvoti	(Brolemann, 1931)	species	Animalia	Arthropoda	Diplopoda	Polydesmida	Paradoxosomatidae	Solaenodolichopus	
ALA_DR653_101	Spatula rhynchotis	(Latham, 1801)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Spatula	Australasian Shoveler
https://biodiversity.org.au/afd/taxa/b200510f-c3f7-4a51-a22e-ed0b58d9bd15	Spectrotrota fimbrialis	Warren, 1891	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pyralidae	Spectrotrota	
https://biodiversity.org.au/afd/taxa/6d1aeef1-b551-4b14-9136-7b66c7078aa2	Sphenarches anisodactylus	(Walker, 1864)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Pterophoridae	Sphenarches	
https://biodiversity.org.au/afd/taxa/cec9b490-3fb0-47d9-a5fe-6c65ad316335	Sphex modestus	Smith, 1856	species	Animalia	Arthropoda	Insecta	Hymenoptera	Sphecidae	Sphex	
https://biodiversity.org.au/afd/taxa/d3bf2b8a-e178-4adb-9c5e-bef63c34e032	Spilopelia chinensis	(Scopoli, 1786)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Spilopelia	Spotted Turtle-dove
https://biodiversity.org.au/afd/taxa/09843a8d-0a78-4680-8bf4-bd95dc93ef0e	Spilopelia senegalensis	(Linnaeus, 1766)	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Spilopelia	Laughing Turtle-dove
https://biodiversity.org.au/afd/taxa/eb612f15-7f65-4ec5-9660-95fae2fd00de	Spodoptera litura	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Spodoptera	
https://biodiversity.org.au/afd/taxa/69321b94-7265-4aa3-bcab-4b682b8d9436	Spodoptera picta	(GuÃ©rin-MÃ©neville, 1831)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Noctuidae	Spodoptera	
https://biodiversity.org.au/afd/taxa/43adf129-76b1-4e81-9593-cd4f5ac7c829	Spoladea recurvalis	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Crambidae	Spoladea	
https://biodiversity.org.au/afd/taxa/093b24db-34bf-4f75-97fe-2329e21c3b18	Steatoda grossa	(C.L. Koch, 1838)	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Steatoda	
https://biodiversity.org.au/afd/taxa/fc15908a-9930-49ff-a097-c2b4623017d1	Stenoderus suturalis	(Olivier, 1795)	species	Animalia	Arthropoda	Insecta	Coleoptera	Cerambycidae	Stenoderus	
https://biodiversity.org.au/afd/taxa/93852469-f5e8-432e-ad53-fbd871afa035	Sterna (Sterna) dougallii	Montagu, 1813	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Sterna	Roseate Tern
https://biodiversity.org.au/afd/taxa/ab455a0c-4545-4c5d-b2e8-1d8f112e413f	Sternula nereis	(Gould, 1843)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Sternula	Fairy Tern
https://biodiversity.org.au/afd/taxa/23c951c0-64d7-4ad0-ac9d-0e33b2a42eeb	Stictonetta naevosa	(Gould, 1841)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Stictonetta	Freckled Duck
https://biodiversity.org.au/afd/taxa/756de09a-efb8-420c-aaeb-7f01f6241626	Stigmodera roei	Saunders, 1868	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Stigmodera	
https://biodiversity.org.au/afd/taxa/8ce669b4-fb53-4be0-9203-b02444eca02a	Strepera (Neostrepera) versicolor	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Artamidae	Strepera	Grey Currawong
NZOR-6-117936	Streptopelia chinensis	Scopoli	species	Animalia	Chordata	Aves	Columbiformes	Columbidae	Streptopelia	Spotted Dove
https://biodiversity.org.au/afd/taxa/9a942ab6-c29b-4de5-ab2a-72c9ef99605a	Strophurus spinigerus	(Gray, 1842)	species	Animalia	Chordata	Reptilia	Squamata	Diplodactylidae	Strophurus	South-western Spiny-tailed Gecko
https://biodiversity.org.au/afd/taxa/44dea5cf-f8a3-4d2b-9b8a-9a94647dc6ab	Suta gouldii	(Gray, 1841)	species	Animalia	Chordata	Reptilia	Squamata	Elapidae	Suta	Gould's Hooded Snake

Species	Species Name	Scientific Name Authorship	Taxon Rank	Kingdom	Phylum	Class	Order	Family	Genus	Vernacular Name
https://biodiversity.org.au/afd/taxa/7d69a9fc-ab80-493b-a008-b75514f70422	Sylvicola dubius	(Macquart, 1850)	species	Animalia	Arthropoda	Insecta	Diptera	Anisopodidae	Sylvicola	
https://biodiversity.org.au/afd/taxa/48000c09-76aa-46a0-b42e-88f3cfef0ac4	Sympetes orbicularis	(BrÃªme, 1842)	species	Animalia	Arthropoda	Insecta	Coleoptera	Tenebrionidae	Sympetes	
https://biodiversity.org.au/afd/taxa/ad50631c-9cf2-4eb3-8b82-a73e1e41cbad	Synechocera elongata	Thomson, 1879	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Synechocera	
https://biodiversity.org.au/afd/taxa/fb531b39-fd0b-4afb-9115-5e4f4691cf7f	Synemon gratiosa	Westwood, 1877	species	Animalia	Arthropoda	Insecta	Lepidoptera	Castniidae	Synemon	Graceful Sunmoth
https://biodiversity.org.au/afd/taxa/c89c6fab-4dda-48fd-bbf3-78d6f1441ecb	Synothele michaelseni	Simon, 1908	species	Animalia	Arthropoda	Arachnida	Araneae	Barychelidae	Synothele	
https://biodiversity.org.au/afd/taxa/cb748125-0c06-4649-8ed8-e379e81e53c1	Tachybaptus novaehollandiae	(Stephens, 1826)	species	Animalia	Chordata	Aves	Podicipediformes	Podicipedidae	Tachybaptus	Australian Little Grebe
https://biodiversity.org.au/afd/taxa/0d4c9c0c-51d3-44e0-a365-fe0f8b791c66	Tachyglossus aculeatus	(Shaw, 1792)	species	Animalia	Chordata	Mammalia	Monotremata	Tachyglossidae	Tachyglossus	Short-beaked Echidna
https://biodiversity.org.au/afd/taxa/8931bcfb-95ea-44b1-96c9-ce036191e15c	Tadorna (Casarca) tadornoides	(Jardine & Selby, 1828)	species	Animalia	Chordata	Aves	Anseriformes	Anatidae	Tadorna	Chestnut Sheldrake
https://biodiversity.org.au/afd/taxa/4ed296cd-960e-4a76-b416-38492e900332	Tamopsis fickerti	(L. Koch, 1876)	species	Animalia	Arthropoda	Arachnida	Araneae	Hersiliidae	Tamopsis	
https://biodiversity.org.au/afd/taxa/6f3c42a3-fd98-48b6-8d84-66b7fe712c08	Taractrocera papyria	(Boisduval, 1832)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hesperiidae	Taractrocera	White-banded Grass-dart
https://biodiversity.org.au/afd/taxa/511a318a-5fe5-4092-84d5-d3f33a519b97	Temognatha mitchellii	(Hope, 1846)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Temognatha	
https://biodiversity.org.au/afd/taxa/8d51e063-e8a6-4904-9503-2e59fadf339c	Temognatha rectipennis	(Blackburn, 1891)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Temognatha	
https://biodiversity.org.au/afd/taxa/4a65a812-f89a-4bbc-9ba7-31435a57f381	Tetragnatha demissa	L. Koch, 1872	species	Animalia	Arthropoda	Arachnida	Araneae	Tetragnathidae	Tetragnatha	
https://biodiversity.org.au/afd/taxa/1441c509-faf3-405e-a534-c51cccc4d720	Thalasseus bergii	(Lichtenstein, 1823)	species	Animalia	Chordata	Aves	Charadriiformes	Laridae	Thalasseus	Crested Tern
https://biodiversity.org.au/afd/taxa/69abc664-0e8f-499a-a934-9b530c5732bd	Tharpyna campestrata	L. Koch, 1874	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Tharpyna	
https://biodiversity.org.au/afd/taxa/52673304-993c-4feb-b3c1-75e3c539a112	Theba pisana	(MÃ¼ller, 1774)	species	Animalia	Mollusca	Gastropoda	Stylommatophora	Helicidae	Theba	White Italian Snail
https://biodiversity.org.au/afd/taxa/282bae67-d9e9-45bf-a045-fc37517fe3ea	Theclinesthes miskini	(T.P. Lucas, 1889)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Theclinesthes	Wattle Blue
https://biodiversity.org.au/afd/taxa/f0c43e9d-d571-4c0c-981a-c09792d7263a	Theclinesthes serpentatus	(Herrich-SchÃ¤ffer, 1869)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Theclinesthes	Salt-bush Blue
https://biodiversity.org.au/afd/taxa/400cf534-a7c8-4c12-bf89-70778f7bee25	Theridion pyramidale	L. Koch, 1867	species	Animalia	Arthropoda	Arachnida	Araneae	Theridiidae	Theridion	
https://biodiversity.org.au/afd/taxa/29c2dab4-8895-4e17-a181-a6f3988991ae	Theseus modestus	(StÃ¥l, 1865)	species	Animalia	Arthropoda	Insecta	Hemiptera	Pentatomidae	Theseus	
https://biodiversity.org.au/afd/taxa/31ee4129-8d8d-45eb-b6ef-0e72e16d0764	Thomisus spectabilis	Doleschall, 1859	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Thomisus	
https://biodiversity.org.au/afd/taxa/f5f5ddd8-ae6a-431b-9e08-3e992b12fa64	Threskiornis moluccus	(Cuvier, 1829)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Threskiornis	Black-necked Ibis
https://biodiversity.org.au/afd/taxa/c319dbaf-a363-4853-b333-75f14c47fc82	Threskiornis spinicollis	(Jameson, 1835)	species	Animalia	Chordata	Aves	Ciconiiformes	Threskiornithidae	Threskiornis	Letter Bird
https://biodiversity.org.au/afd/taxa/ff034710-5f08-4685-a348-ed5f58056118	Thudaca haplonota	Meyrick, 1893	species	Animalia	Arthropoda	Insecta	Lepidoptera	Hypertrophidae	Thudaca	
https://biodiversity.org.au/afd/taxa/1a267044-0be0-484d-918d-9ffd914355df	Tiliqua occipitalis	(Peters, 1863)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Tiliqua	Western Blue-tongue
https://biodiversity.org.au/afd/taxa/1a6623ab-8d46-4da0-957c-f27b663f7ef0	Tiliqua rugosa	(Gray, 1825)	species	Animalia	Chordata	Reptilia	Squamata	Scincidae	Tiliqua	Boggi
https://biodiversity.org.au/afd/taxa/135cc880-f84e-4470-a1c1-fbce3a0ed534	Todiramphus (Todiramphus) sanctus	(Vigors & Horsfield, 1827)	species	Animalia	Chordata	Aves	Coraciiformes	Alcedinidae	Todiramphus	Sacred Kingfisher
https://biodiversity.org.au/afd/taxa/c6778498-4e78-466d-b071-37672378a2c4	Torbia viridissima	(Brunner von Wattenwyl, 1878)	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae	Torbia	
https://biodiversity.org.au/afd/taxa/198b63f0-2786-4496-b8e3-b9e1ce53561c	Tramea stenoloba	(Watson, 1962)	species	Animalia	Arthropoda	Insecta	Odonata	Libellulidae	Tramea	
https://biodiversity.org.au/afd/taxa/4491debc-214f-46a2-95cf-572fe0150d0d	Tribonyx ventralis	(Gould, 1837)	species	Animalia	Chordata	Aves	Gruiformes	Rallidae	Tribonyx	Black-tailed Native Hen
https://biodiversity.org.au/afd/taxa/c517dae5-6bf7-48e8-8501-53e8b87e89a4	Trichoglossus haematodus	(Linnaeus, 1771)	species	Animalia	Chordata	Aves	Psittaciformes	Psittacidae	Trichoglossus	Rainbow Lorikeet
https://biodiversity.org.au/afd/taxa/00b1b9a2-70c9-45be-8019-9c7fd755afc8	Trichosurus vulpecula	(Kerr, 1792)	species	Animalia	Chordata	Mammalia	Diprotodontia	Phalangeridae	Trichosurus	Common Brushtail Possum
https://biodiversity.org.au/afd/taxa/d792ddc0-bdc2-4764-ab9c-ea9e43cd586e	Tringa (Glottis) nebularia	(Gunnerus, 1767)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Tringa	Greenshank
https://biodiversity.org.au/afd/taxa/66cf9e86-f1f3-4716-a4d3-cd4650ff087a	Tringa (Heteroscelus) brevipes	(Vieillot, 1816)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Tringa	Grey-tailed Tattler
https://biodiversity.org.au/afd/taxa/2ecff0de-1ba4-4b53-a368-0e01d36c289d	Tringa (Rhyacophilus) glareola	Linnaeus, 1758	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Tringa	Wood Sandpiper
https://biodiversity.org.au/afd/taxa/8fa8d059-9ce9-41f4-b604-63408d1de0b4	Tringa (Rhyacophilus) stagnatilis	(Bechstein, 1803)	species	Animalia	Chordata	Aves	Charadriiformes	Scolopacidae	Tringa	Marsh Sandpiper
https://biodiversity.org.au/afd/taxa/4020ce10-e79b-4a86-8559-7b1d94eb6ed3	Triplectides australis	NavÃ¡s, 1934	species	Animalia	Arthropoda	Insecta	Trichoptera	Leptoceridae	Triplectides	
NZOR-6-16792	Triplectides cephalotes	Walker	species	Animalia	Arthropoda	Insecta	Trichoptera	Leptoceridae	Triplectides	
https://biodiversity.org.au/afd/taxa/7f0b5430-3e37-4dd4-8dff-d6b288cde445	Turdus merula	Linnaeus, 1758	species	Animalia	Chordata	Aves	Passeriformes	Turdidae	Turdus	Eurasian Blackbird
https://biodiversity.org.au/afd/taxa/03c7f451-eab0-43e1-93bc-a5a653c4c75a	Tympanophora similis	Riek, 1976	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae	Tympanophora	
NZOR-6-54688	Tyto alba	Gould	species	Animalia	Chordata	Aves	Strigiformes	Tytonidae	Tyto	Barn Owl
https://biodiversity.org.au/afd/taxa/86fb93fd-4551-4b38-9a12-62b6b433729b	Tyto javanica	(Gmelin, 1788)	species	Animalia	Chordata	Aves	Strigiformes	Tytonidae	Tyto	Eastern Barn Owl
https://biodiversity.org.au/afd/taxa/21b29887-89bf-4f82-9b7e-ab240245c7b3	Urnisa rugosa	de Saussure, 1884	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Urnisa	
https://biodiversity.org.au/afd/taxa/ebfeed95-746f-40a6-b453-4e6b78aaabc1	Valanga irregularis	(Walker, 1870)	species	Animalia	Arthropoda	Insecta	Orthoptera	Acrididae	Valanga	Giant Grasshopper
https://biodiversity.org.au/afd/taxa/46306d30-cfa1-4528-906b-cae2e9c5c0e8	Vanellus (Lobipluvia) miles	(Boddaert, 1783)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Vanellus	Masked Plover
https://biodiversity.org.au/afd/taxa/e8d7b862-1d56-4d27-84a1-937f7915a0de	Vanellus (Lobivanellus) tricolor	(Vieillot, 1818)	species	Animalia	Chordata	Aves	Charadriiformes	Charadriidae	Vanellus	Banded Lapwing
https://biodiversity.org.au/afd/taxa/c02ef442-e172-4813-9328-2a2bcfe8d4f9	Vanessa cardui	(Linnaeus, 1758)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Vanessa	Painted Lady
https://biodiversity.org.au/afd/taxa/eaeaa5d2-2a24-4dc6-b430-a78d8ea35d8d	Vanessa itea	(Fabricius, 1775)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Vanessa	Yellow Admiral
https://biodiversity.org.au/afd/taxa/5457e4b9-38c9-4f26-82dc-4b2c8ef10ab6	Vanessa kershawi	(McCoy, 1868)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Nymphalidae	Vanessa	Australian Painted Lady
https://biodiversity.org.au/afd/taxa/8313e5d6-0b23-4360-bffd-a81e9f83bc9d	Varanus gouldii	(Gray, 1838)	species	Animalia	Chordata	Reptilia	Squamata	Varanidae	Varanus	Gould's Goanna
https://biodiversity.org.au/afd/taxa/b89281d8-9f0a-4582-a2d8-21904dd6b5b1	Varanus tristis	(Schlegel, 1839)	species	Animalia	Chordata	Reptilia	Squamata	Varanidae	Varanus	Black-headed Monitor
https://biodiversity.org.au/afd/taxa/30afdc05-c995-4a3d-a342-9c29762996c2	Venator immansueta	(Simon, 1909)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Venator	
https://biodiversity.org.au/afd/taxa/f7d50b29-781a-4c2d-8ae0-fa3060c28b5b	Venatrix arenaris	(Hogg, 1905)	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Venatrix	
https://biodiversity.org.au/afd/taxa/b968dddf-272a-4530-8087-fafede46079d	Venatrix pseudospeciosa	Framenau & Vink, 2001	species	Animalia	Arthropoda	Arachnida	Araneae	Lycosidae	Venatrix	
https://biodiversity.org.au/afd/taxa/182e9eae-5358-4261-8a17-b123c1200c8d	Vespula germanica	(Fabricius, 1793)	species	Animalia	Arthropoda	Insecta	Hymenoptera	Vespidae	Vespula	
https://biodiversity.org.au/afd/taxa/2869ce8a-8212-46c2-8327-dfb7fabb8296	Vulpes vulpes	Linnaeus, 1758	species	Animalia	Chordata	Mammalia	Carnivora	Canidae	Vulpes	Fox
https://biodiversity.org.au/afd/taxa/71c9326f-b797-4286-9fae-375b7fc2f53d	Xanthagrion erythroneurum	(Selys, 1876)	species	Animalia	Arthropoda	Insecta	Odonata	Coenagrionidae	Xanthagrion	
https://biodiversity.org.au/afd/taxa/446610b7-2def-4dc1-b0c9-f57f8bb47532	Xederra gwynnei	Rentz, 1985	species	Animalia	Arthropoda	Insecta	Orthoptera	Tettigoniidae	Xederra	
https://biodiversity.org.au/afd/taxa/a4e03513-f96b-4904-b4d3-563d265fa6e0	Xyroscelis crocata	(Gory & Laporte, 1839)	species	Animalia	Arthropoda	Insecta	Coleoptera	Buprestidae	Xyroscelis	
https://biodiversity.org.au/afd/taxa/cff21565-2bc4-4a67-8c0c-600ae7c10fd8	Zanda baudinii	Lear, 1832	species	Animalia	Chordata	Aves	Psittaciformes	Cacatuidae	Zanda	Baudin's Black-cockatoo
https://biodiversity.org.au/afd/taxa/4479b4ab-0d58-4f49-b147-dd55cd74d7ff	Zizina otis	(Fabricius, 1787)	species	Animalia	Arthropoda	Insecta	Lepidoptera	Lycaenidae	Zizina	Common Grass-blue
https://biodiversity.org.au/afd/taxa/e757d41e-9534-45f0-a162-c54f2337e01f	Zonioploca pallida	Shelford, 1909	species	Animalia	Arthropoda	Insecta	Blattodea	Blattidae	Zonioploca	
https://biodiversity.org.au/afd/taxa/fe0d4e5e-6bd5-4e46-a77c-00e8cec73410	Zosterops lateralis	(Latham, 1801)	species	Animalia	Chordata	Aves	Passeriformes	Zosteropidae	Zosterops	Silvereye
https://biodiversity.org.au/afd/taxa/125adc68-3bee-4ba9-86c3-3709572dcd13	Zygometis xanthogaster	(L. Koch, 1875)	species	Animalia	Arthropoda	Arachnida	Araneae	Thomisidae	Zygometis	

APPENDIX 2

Protected Matters Search Tool

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 15-Mar-2023

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	30
Listed Migratory Species:	17

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	36
Commonwealth Heritage Places:	None
Listed Marine Species:	25
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	6
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	20
Key Ecological Features (Marine):	None
Biologically Important Areas:	1
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Banksia Woodlands of the Swan Coastal Plain ecological community	Endangered	Community likely to occur within area	In feature area
Tuart (Eucalyptus gomphocephala) Woodlands and Forests of the Swan Coastal Plain ecological community	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo, Karrak [67034]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat known to occur within area	In feature area
Zanda latirostris listed as Calyptorhynchus latirostris Carnaby's Black Cockatoo, Short-billed Black-cockatoo [87737]	Endangered	Species or species habitat known to occur within area	In feature area
INSECT			
Hesperocolletes douglasi Douglas' Broad-headed Bee, Rottnest Bee [66734]	Critically Endangered	Species or species habitat may occur within area	In feature area
MAMMAL			
Bettongia penicillata ogilbyi Woylie [66844]	Endangered	Species or species habitat may occur within area	In buffer area only
Dasyurus geoffroii Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pseudocheirus occidentalis](#) Western Ringtail Possum, Ngwayir, Womp, Woder, Ngoor, Ngoolangit [25911]	Critically Endangered	Species or species habitat likely to occur within area	In buffer area only
PLANT			
[Andersonia gracilis](#) Slender Andersonia [14470]	Endangered	Species or species habitat may occur within area	In feature area
[Anigozanthos viridis subsp. terraspectans](#) Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Banksia mimica](#) Summer Honeypot [82765]	Endangered	Species or species habitat may occur within area	In feature area
[Caladenia huegelii](#) King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat may occur within area	In buffer area only
[Diuris micrantha](#) Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Diuris purdiei](#) Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area	In feature area
[Drakaea elastica](#) Glossy-leafed Hammer Orchid, Glossy-leaved Hammer Orchid, Warty Hammer Orchid [16753]	Endangered	Species or species habitat likely to occur within area	In feature area
[Drakaea micrantha](#) Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area	In feature area
[Eleocharis keigheryi](#) Keighery's Eleocharis [64893]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Eucalyptus argutifolia](#) Yanchep Mallee, Wabling Hill Mallee [24263]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macarthuria keigheryi			
Keighery's Macarthuria [64930]	Endangered	Species or species habitat may occur within area	In feature area
Marianthus paralius			
[83925]	Endangered	Species or species habitat known to occur within area	In buffer area only
SHARK			
Pristis pristis			
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Sterna dougallii			
Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Migratory Marine Species			
Pristis pristis			
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea			
Grey Wagtail [642]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat known to occur within area	In buffer area only
[Calidris subminuta](#) Long-toed Stint [861]		Species or species habitat known to occur within area	In buffer area only
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat likely to occur within area	In buffer area only
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Pandion haliaetus](#) Osprey [952]		Species or species habitat known to occur within area	In feature area
[Tringa glareola](#) Wood Sandpiper [829]		Species or species habitat known to occur within area	In buffer area only
[Tringa nebularia](#) Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Unknown		
Commonwealth Land - [50574]	WA	In buffer area only
Commonwealth Land - [50587]	WA	In buffer area only
Commonwealth Land - [50586]	WA	In buffer area only
Commonwealth Land - [50668]	WA	In buffer area only
Commonwealth Land - [50713]	WA	In buffer area only
Commonwealth Land - [50680]	WA	In buffer area only
Commonwealth Land - [50711]	WA	In buffer area only
Commonwealth Land - [50689]	WA	In buffer area only
Commonwealth Land - [50553]	WA	In buffer area only
Commonwealth Land - [50705]	WA	In buffer area only
Commonwealth Land - [50704]	WA	In buffer area only
Commonwealth Land - [50716]	WA	In buffer area only
Commonwealth Land - [50674]	WA	In buffer area only
Commonwealth Land - [50747]	WA	In buffer area only
Commonwealth Land - [50630]	WA	In buffer area only
Commonwealth Land - [50588]	WA	In buffer area only
Commonwealth Land - [50582]	WA	In buffer area only
Commonwealth Land - [50583]	WA	In buffer area only
Commonwealth Land - [50584]	WA	In buffer area only
Commonwealth Land - [50667]	WA	In buffer area only
Commonwealth Land - [50682]	WA	In buffer area only
Commonwealth Land - [50594]	WA	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - [50592]	WA	In buffer area only
Commonwealth Land - [50593]	WA	In buffer area only
Commonwealth Land - [50598]	WA	In buffer area only
Commonwealth Land - [50576]	WA	In buffer area only
Commonwealth Land - [50706]	WA	In buffer area only
Commonwealth Land - [50703]	WA	In buffer area only
Commonwealth Land - [50700]	WA	In buffer area only
Commonwealth Land - [50701]	WA	In buffer area only
Commonwealth Land - [50702]	WA	In buffer area only
Commonwealth Land - [50626]	WA	In buffer area only
Commonwealth Land - [51132]	WA	In buffer area only
Commonwealth Land - [50606]	WA	In buffer area only
Commonwealth Land - [51130]	WA	In buffer area only
Commonwealth Land - [50625]	WA	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Calidris ruficollis](#) Red-necked Stint [860]		Species or species habitat known to occur within area overfly marine area	In buffer area only
[Calidris subminuta](#) Long-toed Stint [861]		Species or species habitat known to occur within area overfly marine area	In buffer area only
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Charadrius ruficapillus](#) Red-capped Plover [881]		Species or species habitat known to occur within area overfly marine area	In buffer area only
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
[Himantopus himantopus](#) Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area overfly marine area	In buffer area only
[Limosa lapponica](#) Bar-tailed Godwit [844]		Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to occur within area overfly marine area	In buffer area only
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna dougallii Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Thinornis cucullatus as Thinornis rubricollis Hooded Plover, Hooded Dotterel [87735]		Species or species habitat may occur within area overfly marine area	In feature area
Tringa glareola Wood Sandpiper [829]		Species or species habitat known to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tringa nebularia			
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Jandabup	Nature Reserve	WA	In buffer area only
Lake Joondalup	Nature Reserve	WA	In buffer area only
Unnamed WA46756	Conservation Park	WA	In buffer area only
Unnamed WA46926	5(1)(h) Reserve	WA	In feature area
Unnamed WA50514	5(1)(h) Reserve	WA	In buffer area only
Woodvale	5(1)(h) Reserve	WA	In buffer area only

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Joondalup Lake	WA	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Alkimos Seawater Desalination	2019/8453	Controlled Action	Assessment Approach	In buffer area only
Land Development, James Street and Well Street, East Wanneroo, Elberton Property	2021/9106	Controlled Action	Assessment Approach	In buffer area only
Lot 1665 Wanneroo Road, Sinagra.	2017/7921	Controlled Action	Post-Approval	In buffer area only
Lot 9000 Wanneroo Road Sinagra Mixed Use Development, Western Australia	2020/8798	Controlled Action	Proposed Decision	In buffer area only
Mitchell Freeway Principal Shared Path Gaps Project Ocean Reef Road to Hepburn Avenue	2020/8833	Controlled Action	Post-Approval	In buffer area only
Nava-1 Cable System	2001/510	Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Not controlled action				
Commercial development of Lot 9004 Hodges Drive, Joondalup, WA	2016/7844	Not Controlled Action	Completed	In buffer area only
Development of ECU Engineering Annex, Joondalup Campus, WA	2017/7995	Not Controlled Action	Completed	In buffer area only
Eradication of the European House Borer, Perth metropolitan area, WA	2009/5027	Not Controlled Action	Completed	In buffer area only
Groundwater Replenishment Scheme (GWRS) Stage 2	2016/7786	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Lot 594 Wanneroo Road development, Hocking	2020/8621	Not Controlled Action	Completed	In buffer area only
Pearsall Primary School, Lots 62, 269, 1008, 1009 & Part Lot 23, Pearsall, WA	2012/6405	Not Controlled Action	Completed	In buffer area only
Residential Development, 50 Lot 2 Driver Road, Darch, Western Australia	2020/8677	Not Controlled Action	Completed	In buffer area only
Residential Development, Lots 10 Dundebar Road and 28 and 29 Belgrade Road, East Wanneroo, WA	2019/8521	Not Controlled Action	Completed	In buffer area only
Residential Subdivision - Lots 12, 36 & 38 Capron St, Wanneroo	2012/6409	Not Controlled Action	Completed	In buffer area only
Wangara Industrial Extension Area, WA	2012/6501	Not Controlled Action	Completed	In buffer area only
Wanneroo Road/Ocean Reef Road Grade Separation, Pearsall, WA	2017/8110	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Ocean Reef Road Extension Works in Wangara	2010/5388	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Road realignment and widening	2009/4926	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status

Scientific Name	Behaviour	Presence	Buffer Status
Seabirds			
Sterna dougallii			
Roseate Tern [817]	Foraging	Known to occur	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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APPENDIX 3

Conservation Codes

Conservation Codes for Western Australian Flora and Fauna

Specially protected fauna or flora are species* which have been adequately searched for and are deemed to be, in the wild, either rare, at risk of extinction, or otherwise in need of special protection, and have been gazetted as such. Conservation codes have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018.*

T Threatened species – Schedules 1-4

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

- **Threatened fauna** is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.
- **Threatened flora** is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR Critically endangered species

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN Endangered species

Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU Vulnerable species

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife*

Conservation (Specially Protected Fauna) Notice 2018 for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

EX Presumed extinct species

Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that "*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018.*

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P Priority species

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

Priority 1: Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

Priority 2: Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

Priority 3: Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

Priority 4: Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

*Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).

Western Australian Ecological Communities

Threatened Ecological Communities

The BC Act provides for the statutory listing of threatened ecological communities (TECs) by the Minister.

Presumed Totally Destroyed (PD)

An ecological community that has been adequately searched for but for which no representative occurrences have been located. The community has been found to be totally destroyed or so extensively modified throughout its range that no occurrence of it is likely to recover its species composition and/or structure in the foreseeable future.

Critically Endangered (CR)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or that was originally of limited distribution and is facing severe modification or destruction throughout its range in the immediate future, or is already severely degraded throughout its range but capable of being substantially restored or rehabilitated.

Endangered (EN)

An ecological community that has been adequately surveyed and found to have been subject to a major contraction in area and/or was originally of limited distribution and is in danger of significant modification throughout its range or severe modification or destruction over most of its range in the near future.

Vulnerable (VU)

An ecological community that has been adequately surveyed and is found to be declining and/or has declined in distribution and/or condition and whose ultimate security has not yet been assured and/or a community that is still widespread but is believed likely to move into a category of higher threat in the near future if threatening processes continue or begin operating throughout its range.

Priority Ecological Communities

Possible threatened ecological communities that do not meet survey criteria or that are not adequately defined are added to the Priority Ecological Community List under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list, are placed in Priority 4. These ecological communities require regular monitoring. Conservation Dependent ecological communities are placed in Priority 5.

Priority One: Poorly-known ecological communities

Ecological communities that are known from very few occurrences with a very restricted distribution (generally ≤5 occurrences or a total area of ≤ 100ha).

Occurrences are believed to be under threat either due to limited extent, or being on lands under immediate threat (e.g. within agricultural or pastoral lands, urban areas, active mineral leases) or for which current threats exist. May include communities with occurrences on protected lands. Communities may be included if they are comparatively well-known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under immediate threat from known threatening processes across their range.

Priority Two: Poorly-known ecological communities

Communities that are known from few occurrences with a restricted distribution (generally ≤10 occurrences or a total area of ≤200ha). At least some occurrences are not believed to be under immediate threat (within approximately 10 years) of destruction or degradation. Communities may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements, and/or are not well defined, and appear to be under threat from known threatening processes.

Priority Three: Poorly known ecological communities

(i) Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation or:

(ii) communities known from a few widespread occurrences, which are either large or with significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat (within approximately 10 years), or;

(iii) munities made up of large, and/or widespread occurrences, that may or may not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing by domestic and/or feral stock, inappropriate fire regimes, clearing, hydrological change etc.

Communities may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and/or are not well defined, and known threatening processes exist that could affect them.

Priority Four: Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring.

(i) Rare. Ecological communities known from few occurrences that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These communities are usually represented on conservation lands.

(ii) Near Threatened. Ecological communities that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for a higher threat category.

(iii) Ecological communities that have been removed from the list of threatened communities during the past five years.

Priority Five: Conservation Dependent ecological communities

Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

Commonwealth of Australia Conservation Codes

Threatened Flora and Fauna

Threatened fauna and flora may be listed under Section 178 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in any one of the following six categories:

Extinct

A native species is eligible to be included in the extinct category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.

Extinct in the wild

A native species is eligible to be included in the extinct in the wild category at a particular time if, at that time:

a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

Critically endangered

A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing an extremely high risk of extinction in the wild.

Endangered

A taxon is Endangered when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a very high risk of extinction in the wild.

Vulnerable

A taxon is Vulnerable when the best available evidence indicates that it meets any of the five criteria for the category identified in Part 7.01 of the EPBC Regulations, and it is therefore considered to be facing a high risk of extinction in the wild.

Conservation dependent

A native species is eligible to be included in the conservation dependent category at a particular time if, at that time:

a) the species is the focus of a specific conservation program the cessation of which would result in the species becoming vulnerable, endangered or critically endangered; or
b) the following subparagraphs are satisfied:
    i. the species is a species of fish;

ii. the species is the focus of a plan of management that provides for management actions necessary to stop the decline of, and support the recovery of, the species so that its chances of long term survival in nature are maximised;
iii. the plan of management is in force under a law of the Commonwealth or of a State or Territory;
iv. cessation of the plan of management would adversely affect the conservation status of the species.

The EPBC Act does not provide for listing in a data deficient category. Where sufficient data (evidence) is unavailable to allow assessment by the Threatened Species Scientific Committee against the criteria for listing, the species are found to be ineligible. A recommendation is made to the Minister to not include the species in any category under the EPBC Act. For reasons of transparency and to inform future research, the Threatened Species Scientific Committee publishes the names of those species found to be data deficient. As data deficient is not a listing category under the EPBC Act, this has no statutory implications and the species is not considered to be listed under the EPBC Act.

Threatened Ecological Communities

Threatened Ecological communities under the EPBC Act are listed in three categories.

Critically endangered

If, at that time, an ecological community is facing an extremely high risk of extinction in the wild in the immediate future (indicative timeframe being the next 10 years).

Endangered

If, at that time, an ecological community is not critically endangered but is facing a very high risk of extinction in the wild in the near future (indicative timeframe being the next 20 years).

Vulnerable

If, at that time, an ecological community is not critically endangered or endangered, but is facing a high risk of extinction in the wild in the medium–term future (indicative timeframe being the next 50 years).

APPENDIX 4

Tree Data

Map and describe trees greater than 500 mm in diameter				Date: 18.11.22		Observer: PvdM			
Tree Number	**Species**	**Easting MGA zn50**	**Northing MGA zn50**	**Photo Number**	**Height**	**Diameter**	**Second Branch**	**Third Branch**	**Notes (hollows, bees etc.)**
1	Marri	386609	6482146	8.47	20	58			Half dead, no hollows
2	Marri	386648	6482183	8.5	22	68			no hollows
3	Marri	386659	6482175	8.52	20	58			leaning, no hollows
4	Marri	386646	6482196	8.53	25	79			no hollows
5	Marri	386653	6482213	8.57	22	55			no hollows
6	Marri	386685	6482179	9.05L	24	64			no hollows
7	Marri	386686	6482189	9.05R	23	60			no hollows
8	Tuart	386691	64821226	9.08	21	75			no hollows
9	Marri	386701	6482234	9.9	24	68			no hollows
10	Marri	386713	6482234	9.13	21	56			no hollows
11	Marri	386725	6482247	9.15	22	72			no hollows
12	Standing Dead	386747	6482239	9.18	25	88			small spouts
13	Marri	386746	6482218	9.2	30	62			leaning, no hollows
14	Marri	386754	64821203	9.21	28	67			no hollows
15	Tuart	386760	6482166	9.24	28	95	51		no hollows
16	Marri	386744	6482178	9.25	26	70	43		no hollows
17	Marri	386745	6482183	9.32L	20	51			no hollows
18	Marri	386743	6482185	9.32R	28	57			no hollows
19	Tuart	386735	6482181	9.35	18	51			no hollows
20	Jarrah	386674	6482119	10.22	10	57			no hollows

APPENDIX 5

Aboriginal Heritage Inquiry System Reports

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

Search Criteria

No Registered Aboriginal Sites in Custom search area - Polygon - 115.801698894543°E, 31.7913767196311°S (GDA94) : 115.802380175633°E, 31.7900225070023°S (GDA94) : 115.802380175633°E, 31.7900133876581°S (GDA94) : 115.805539817853°E, 31.7889053806424°S (GDA94) : 115.806027979893°E, 31.7897580456551°S (GDA94) : 115.801698894543°E, 31.7913767196311°S (GDA94)

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at AboriginalHeritage@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land **within or adjacent to** the following Indigenous Land Use Agreement(s): Whadjuk People Indigenous Land Use Agreement.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/south-west-native-title-settlement.

Further advice can also be sought from the Department of Planning, Lands and Heritage at AboriginalHeritage@dplh.wa.gov.au.

Copyright

Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

Map of Registered Aboriginal Sites

For further important information on using this information please see the Department of Planning, Lands and Heritage's Disclaimer statement at https://www.dplh.wa.gov.au/about-this-website

Legend

- Registered Aboriginal Site
- Search Area
- Town
- Road
- River
- Local Government Authority

0.15 kilometres

Map Scale 1 : 4,660

MGA Zone 50 (GDA94)

Part Lot 28 & Lot 36 Woodvale Drive, Joondalup

Transport Impact Assessment

15/02/2023

Prepared for:

Riverswan Holdings Pty Ltd

Prepared by:

Stantec Consulting Services Inc

TRANSPORT IMPACT ASSESSMENT

LOT 36 WOODVALE DRIVE, JOONDALUP

Revision	Description	Author		Quality Check		Independent Review	
Rev A	For issue	AW		RC			
Rev B	Updated Site Plan	RR		AW		RC	

TRANSPORT IMPACT ASSESSMENT

LOT 36 WOODVALE DRIVE, JOONDALUP

Prepared by _____
(signature)
Andreas Wang

Reviewed by _____
(signature)
Ray Cook

Approved by _____
(signature)
Enter Name

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LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1 BACKGROUND

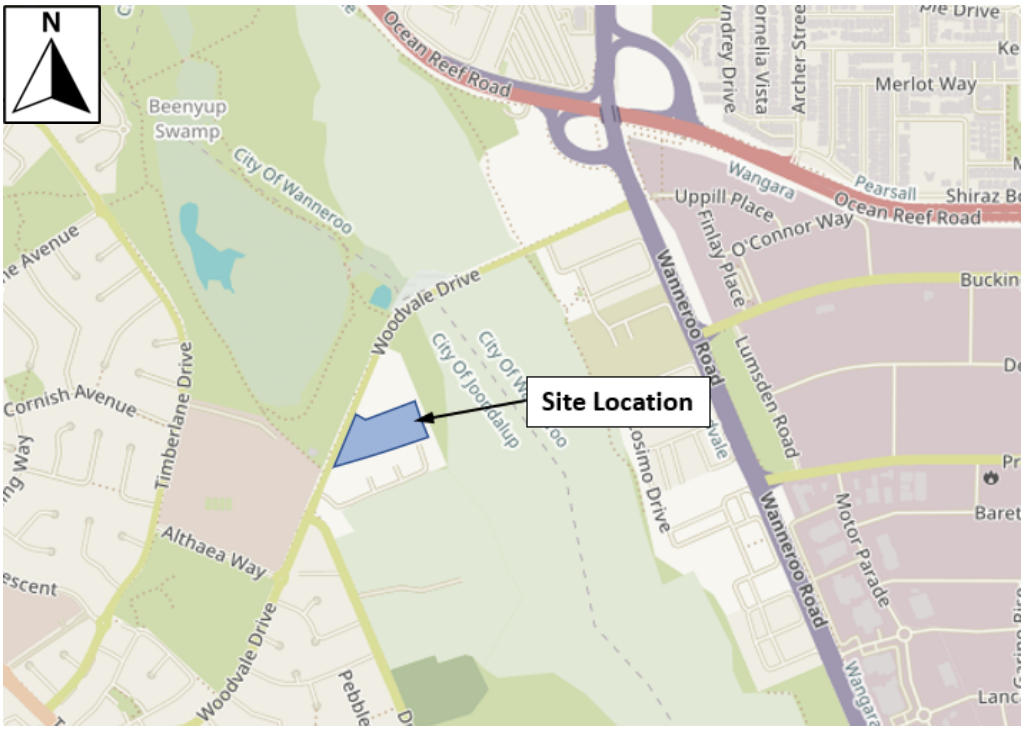
Stantec has been commissioned by Riverswan Holdings Pty Ltd("the Client") to prepare a Transport Impact Assessment (TIA) for the proposed scheme amendment located at Part Lot 28 & Lot 36 Woodvale Drive in the City of Joondalup, WA (the "Site").

This TIA has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Transport Impact Assessment Guidelines Volume 2 – Planning Schemes, Structure Plans, and Activity Centre*.

1.2 SITE LOCATION

The Site is located in the suburb of Woodvale as shown in **Figure 1-1** The Site is adjecent to Woodvale Drive.

Figure 1-1 Site Location



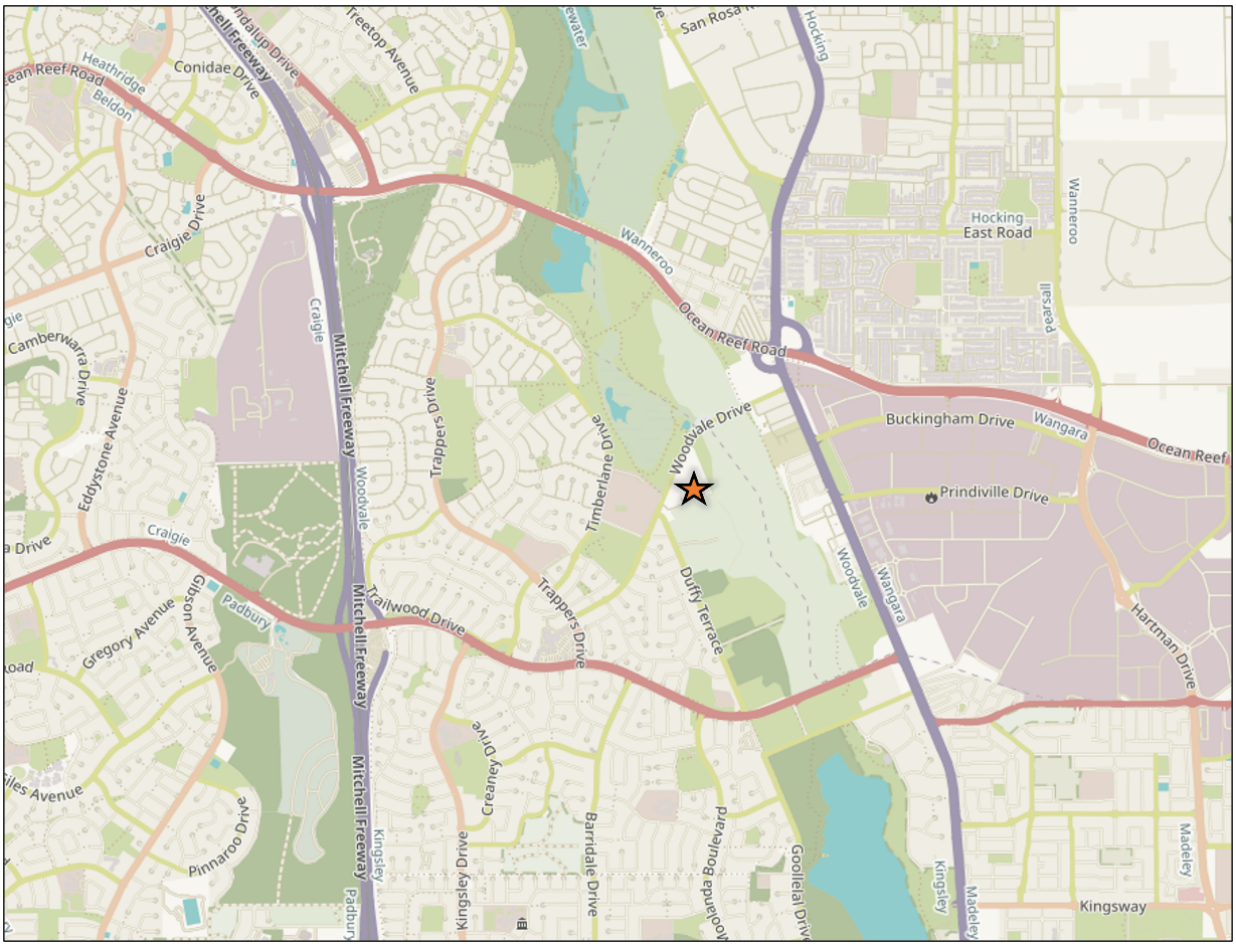
Source: Open Street Maps 2022

2 PROPOSED SCHEME AMENDMENT

2.1 REGIONAL CONTEXT

The proposed development is located within the suburb of Woodvale, as shown in **Figure 2-1**.

Figure 2-1 Regional Context



Source: Open Street Maps 2023

2.2 PROPOSED LAND USE

The Amendment to the City of Joondalup Local Planning Scheme No.3 proposes to rezone the site from 'Rural' and 'Private Community Purposes' to 'Residential' with a density coding of R30 as shown in **Figure 2-2**. A concept plan prepared for the Site consists of 38 individual residential dwelling units as shown in **Figure 2-3**. **Table 2-1** provides a summary of land uses within the proposed concept plan.

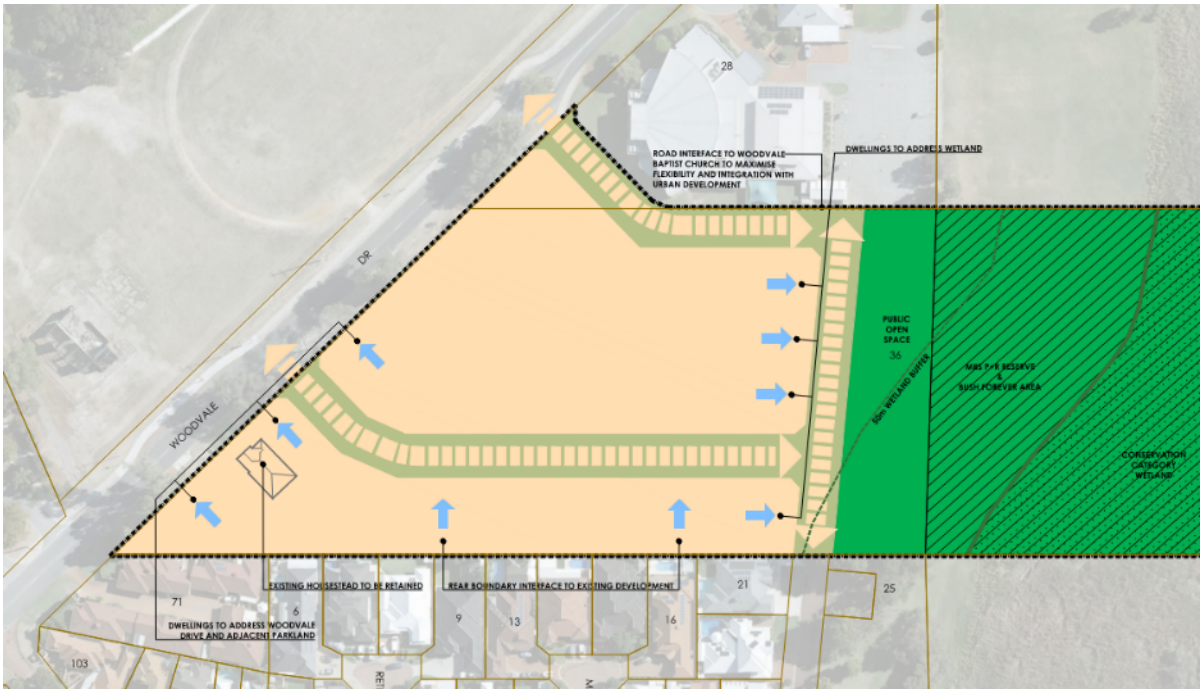
Table 2-1 Proposed Land Uses within LSP

Land Use	Total Number of Lots
Individual Residential Units	38

Figure 2-2 Proposed Scheme Amendment

Source: Burgess Design Group

Figure 2-3 Concept Plan



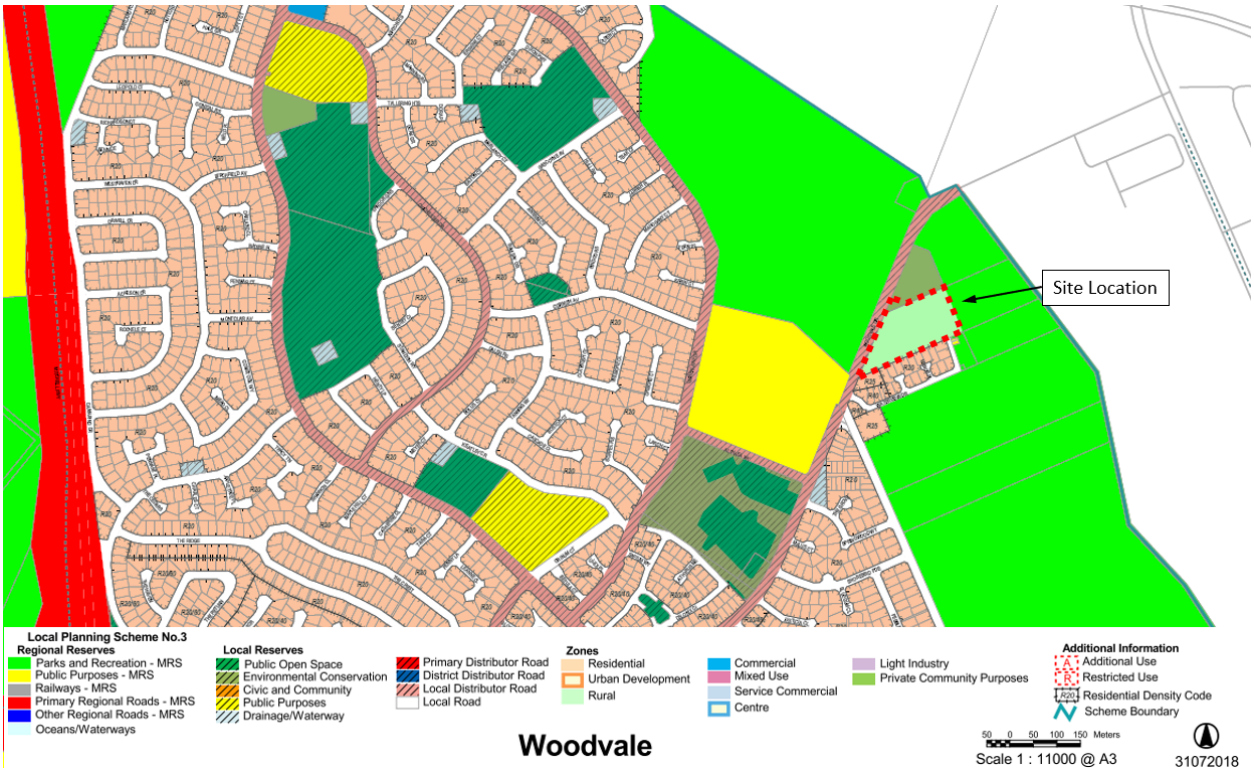
Source: Burgess Design Group

3 EXISTING SITUATION

3.1 EXISTING LAND USES

Pursuant to the provision of the City of Joondalup Local Planning Scheme No. 3 for suburb of Woodvale, the Site is currently zoned 'Rural' and 'Private Community Purposes' as shown in **Figure 3-1**. The site is surrounded by parks and recreation to the east, residential dwellings to the south, and the Woodvale Baptist Church to the north.

Figure 3-1 Woodvale Zoning Map



Source: City of Joondalup Scheme Map - Woodvale

3.2 EXISTING ROAD NETWORK

Road classifications are defined in the Main Roads Functional Hierarchy as follows:

- **Primary Distributors (light blue):** Form the regional and inter-regional grid of MRWA traffic routes and carry large volumes of fast-moving traffic. Some are strategic freight routes, and all are National or State Roads WA.
- **Regional Distributors (red):** Roads that are not Primary Distributors, but which link significant destinations and are designed for efficient movement of people and goods within and beyond regional areas. They are managed by Local Government.
- **District Distributor A (green):** These carry traffic between industrial, commercial and residential areas and connect to Primary Distributors. These are likely to be truck routes and provide only limited access to adjoining properties. They are managed by Local Government.
- **Distributor B (dark blue):** Preform a similar function to District Distributor A but with reduced capacity due to flow restrictions from access to and roadside parking alongside adjoining property. These are often older roads with traffic demand more than that originally intended. District Distributor A and B roads run between land-use cells and not through them, forming a grid that would ideally be around 1.5 kilometres apart. They are managed by Local Government.
- **Local Distributors (orange):** Carry traffic within a cell and link District Distributors at the boundary to access roads. The route of the Local Distributor discourages through traffic so that the cell formed by the grid of District Distributors only carries traffic belonging to or serving the area. These roads should accommodate buses but discourage trucks. They are managed by Local Government.
- **Access Roads (grey):** Provide access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function. These roads are bicycle and pedestrian friendly. They are managed by Local Government.

The site is accessed by Woodvale Drive to the west. Woodvale Drive connects to Trappers Drive to the south and Wanneroo Road to the north. The surrounding road network is further described in **Table 3-1** and shows the hierarchy as per the Main Roads WA Road Information Mapping System, whilst **Figure 3-2** shows the road hierarchy.

Table 3-1 Road Network Classification

Road Names	Road Hierarchy		Road Network			
	Road Hierarchy	Jurisdiction	No. of Lanes	No. of Footpaths	Width (m)	Speed Limit (km/h)
Woodvale Drive	Access Road	Local Government	2	1	8.4	50
Trappers Drive	Local Distributor	Local Government	1-2	2	10	50
Wanneroo Road	Primary Distributor	Main Roads WA	4	1-2	8	70

Figure 3-2 Road Hierarchy Map

Source: Main Roads WA Road Information Mapping System

3.3 EXISTING TRAFFIC VOLUMES

Existing weekday traffic volumes were obtained from the Main Roads WA Trafficmap in the vicinity of the Site. These traffic volumes are summarised in **Table 3-2**.

Table 3-2 Existing Weekdays Traffic Volume

Road Name	Year	Daily (vpd)	AM Peak Hour (07:45 – 08:45) (vph)	PM Peak Hour (15:45 – 16:45) (vph)	Heavy Vehicle %
Woodvale Drive	2022	7,575	788	630	2%

Source: Main Roads WA Trafficmap

3.4 EXISTING PUBLIC PEDESTRIAN/CYCLIST NETWORK

A footpath with a width of approximately 2.7m is located on the western side of Woodvale Drive. There are no dedicated cycling facilities within the Site itself.

3.5 EXISTING PUBLIC TRANSPORT NETWORK

Bus stops for Transperth service 467 (Whitfords Station to Joondalup Station) is located in close proximity to the Site. During both the AM and PM peaks the service frequencies vary between 15-30 minutes. Outside of the AM and PM peaks, the bus services run approximately every 30 minutes.

3.6 CRASH ASSESSMENT

A crash assessment within the proximity of the subject site has been completed. The assessment covers all the recorded accidents in between 1 January 2017 and 31 December 2021 for the section shown in **Figure 3-3**. The midblock crash data is summarised in **Table 3-3**, while the crash data for the intersection of Woodvale Drive / Duffy Terrace is summarised in **Table 3-4**. The crash data indicates only 1 midblock crash has occurred on this section of Woodvale Drive within the past 5 years, which only resulted in minor property damage. As such, no systemic crash risks are considered to exist along this section of Woodvale Drive.

Figure 3-3 Crash Map

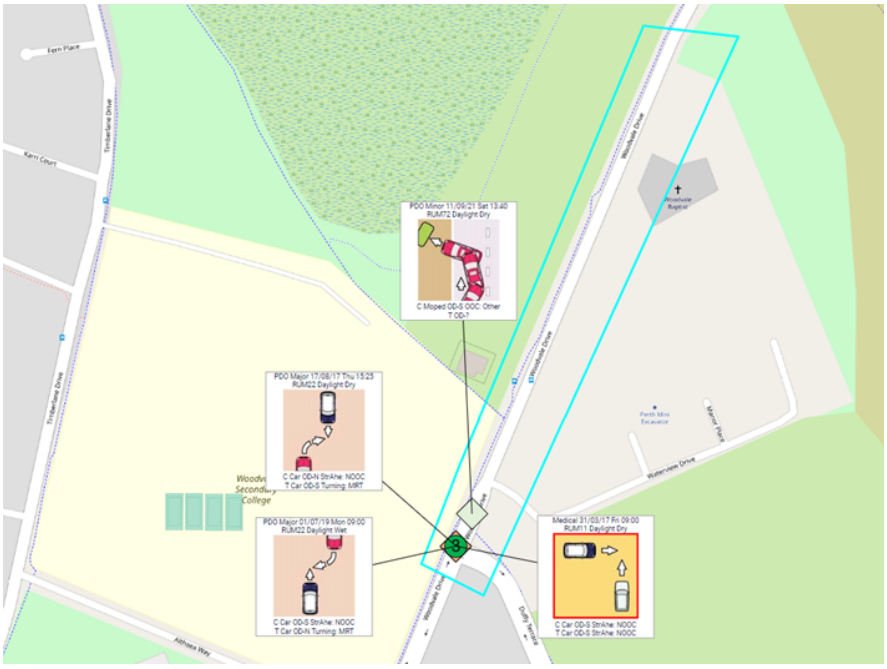


Table 3-3 Woodvale Drive Midblock Crashes

	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total
Hit object	-	-	-	-	1	**1**
Total	**-**	**-**	**-**	**-**	**1**	**1**

Table 3-4 Woodvale Dr / Duffy Tce Intersection Crashes

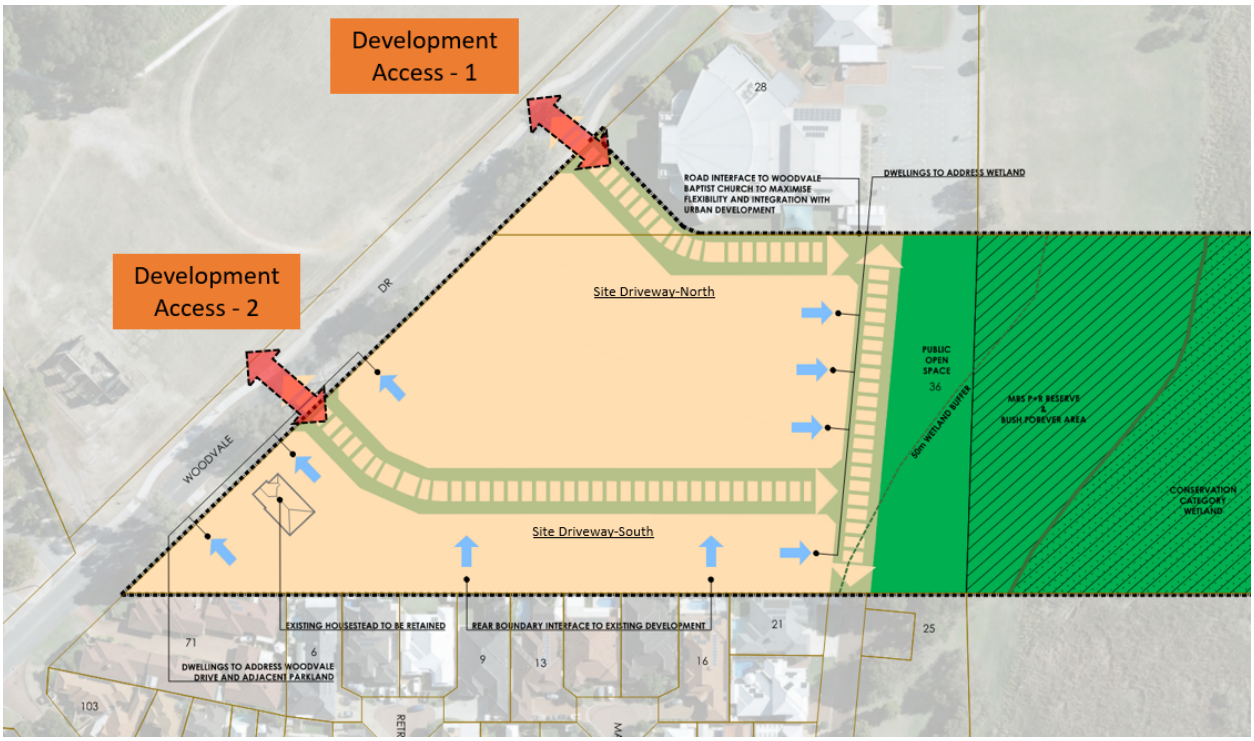
	Fatal	Hospital	Medical	PDO Major	PDO Minor	Total
Right Angle	-	-	1	-	-	**1**
Right Turn thru	-	-	-	2	-	**2**
Total	**-**	**-**	**1**	**2**	**-**	**3**

4 PROPOSED INTERNAL TRANSPORT NETWORK

4.1 INTERNAL ROAD NETWORK / ACCESS

The proposed internal road network and access locations are shown in **Figure 4-1.**

Figure 4-1 Site Access



5 INTEGRATION WITH SURROUNDING AREA

5.1 SURROUNDING ATTRACTORS AND GENERATORS

The area surrounding the proposed development is primarily residential or park and recreational. Woodvale Secondary College is located almost immediately opposite the Site, while the Woodvale Baptist church is located directly north of the Site. The Site location and surrounding attractors / generators are shown in **Figure 5-1**.

Figure 5-1 Surrounding Attractors and Generators

5.2 ACCESSIBILITY TO SURROUNDING AREA

Woodvale Secondary College and the Woodvale Baptist Church are located within short walking distances of the Site, while access to bus service 467 is also located within short walking distance.

The 2 proposed accesses to Woodvale Drive will provide good vehicular access to the Site.

6 ANALYSIS OF TRANSPORT NETWORK

6.1 DEVELOPMENT TRAFFIC GENERATION

Trip generation rates were sourced from the Trip Generation Manual 10th Edition from the Institute of Transportation Engineers ITE based on the land uses proposed for the Scheme Amendment. **Table 6-1** below shows the trip rates for the proposed land use. **Table 6-2** shows the directional distribution and

Table 6-3 shows the resultant trip generation.

As mentioned in the previous section, 38 individual residential units are proposed, and no future expansion is proposed on the land parcel. Trip generation for the proposed development is summarised below:

Table 6-1 Trip Generation Rate

Land Use	Source	AM Peak Rate	PM Peak Rate	Daily Rate
Residential	ITE 210	0.74 per dwelling	0.99 per dwelling	9.44 per dwelling

Table 6-2 Trip Directional Distribution

Land Use	AM Peak		PM Peak		Daily	
	In	Out	In	Out	In	Out
Residential	25%	75%	63%	37%	50%	50%

Table 6-3 Estimated Trip Generation

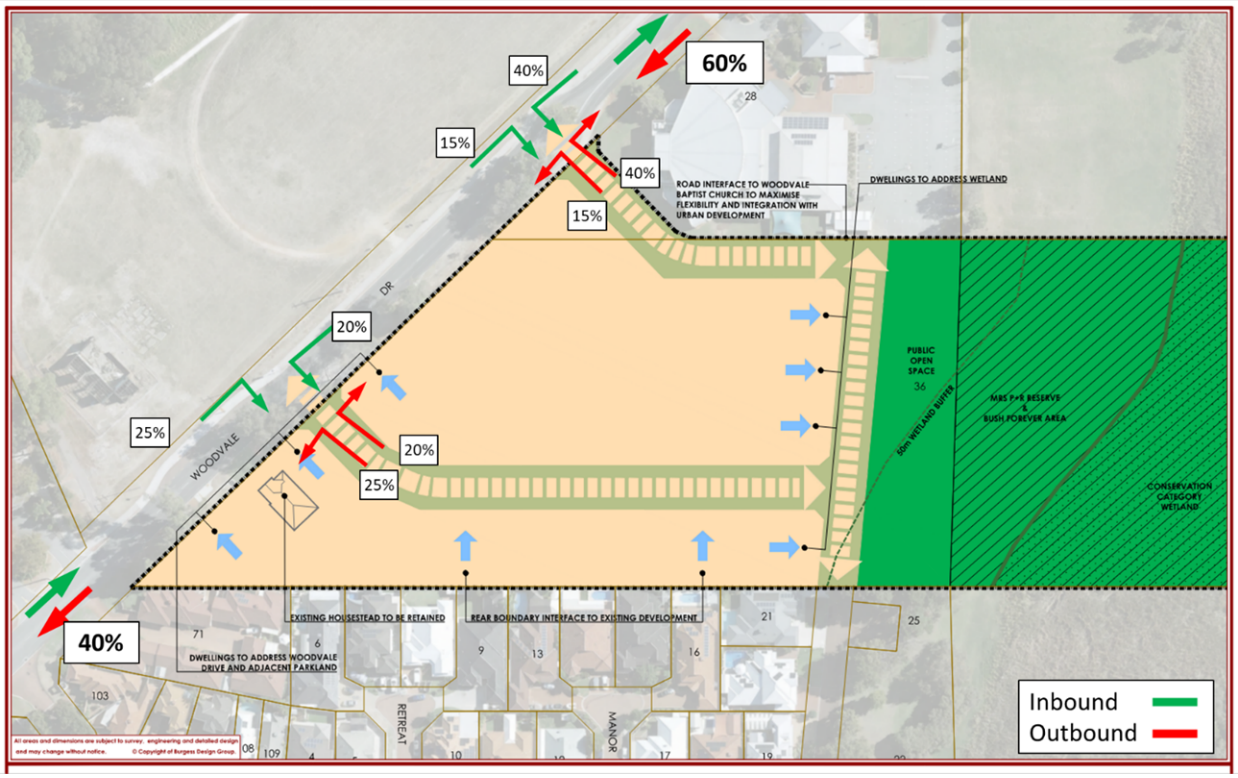
Land Use	Yield	AM Peak			PM Peak			Daily		
		Total	In	Out	Total	In	Out	Total	In	Out
Residential	38 dwellings	**28**	7	21	**38**	24	14	**359**	179	179

6.2 TRIP DISTRIBUTION

Figure 6-1 shows the assumed trip distribution for the proposed development. The majority of traffic (60%) is assumed to go to/from the north via Wanneroo Road, with the remaining 40% assumed to go to/from the south via Trappers Drive.

It was also assumed that the majority of traffic going to/from the north would utilise the northern access, while traffic going to/from the south would utilise the southern traffic. The overall assumed trip distribution assumptions are shown in **Figure 6-1**.

Figure 6-1 Trip Distribution



6.3 BACKGROUND TRAFFIC

Background traffic data for the year 2022 was sourced from available traffic data via the Main Roads WA Trafficmap. The assumed opening year of the project is 2025. An annual growth rate of 3.0% was applied to the background (non-development) traffic volumes on Woodvale Drive for the purpose of this assessment.

6.4 KEY INTERSECTION ANALYSIS

6.4.1 SIDRA Results Definition

The proposed intersections at Woodvale Drive were analysed using SIDRA analysis program. This program calculates the performance of intersections based on input parameters, including geometry and traffic volumes. As an output SIDRA provides values for the Degree of Saturation (DOS), queue lengths, delays, level of service, and 95th Percentile Queue. These parameters are defined as follows:

- Degree of Saturation (DOS) is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The theoretical intersection capacity is exceeded for an unsignalized intersection where DOS > 0.80.
- 95% Queue is the statistical estimate of the queue length up to or below which 95% of all observed queues would be expected.
- Average Delay is the average of all travel time delays for vehicles through the intersection. An unsignalized intersection can be operating at capacity where the average delay exceeds 55 seconds for any movement; and
- Level of Service (LOS) is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The different levels of service can generally be described as shown in **Table 6-4.**

Table 6-4 Level of Service (LoS) Performance Criteria

LOS	Description	Signalised Intersection	Unsignalized Intersection
A	Free-flow operations (best condition)	≤10 sec	≤10 sec
B	Reasonable free-flow operations	10-20 sec	10-15 sec
C	At or near free-flow operations	20-35 sec	15-25 sec
D	Decreasing free-flow levels	35-55 sec	25-35 sec
E	Operations at capacity	55-80 sec	35-50 sec
F	A breakdown in vehicular flow (worst condition)	≥80 sec	≥50 sec

The detailed SIDRA outputs are provided in **Appendix B**.

6.4.2 Peak Hour Traffic Flows

Figure 6-2 to **Figure 6-5** show the full-build year peak hour traffic flows for both accesses to the development.

Figure 6-2 Development Access -1 – AM Peak volume

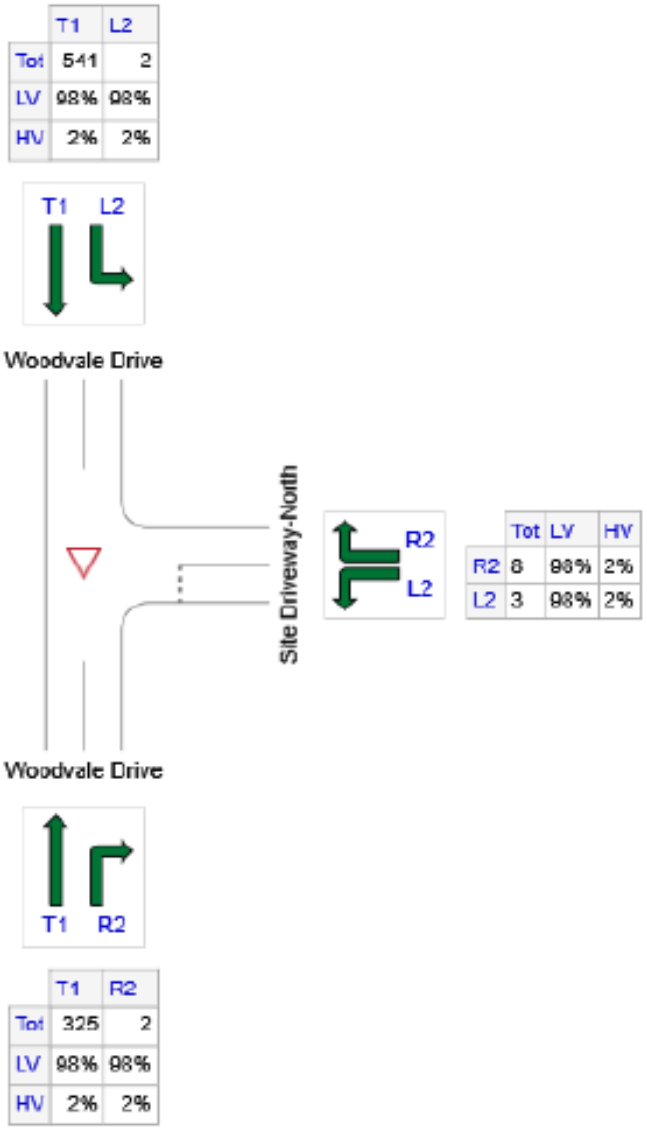


Figure 6-3 Development Access -1 – PM Peak volume

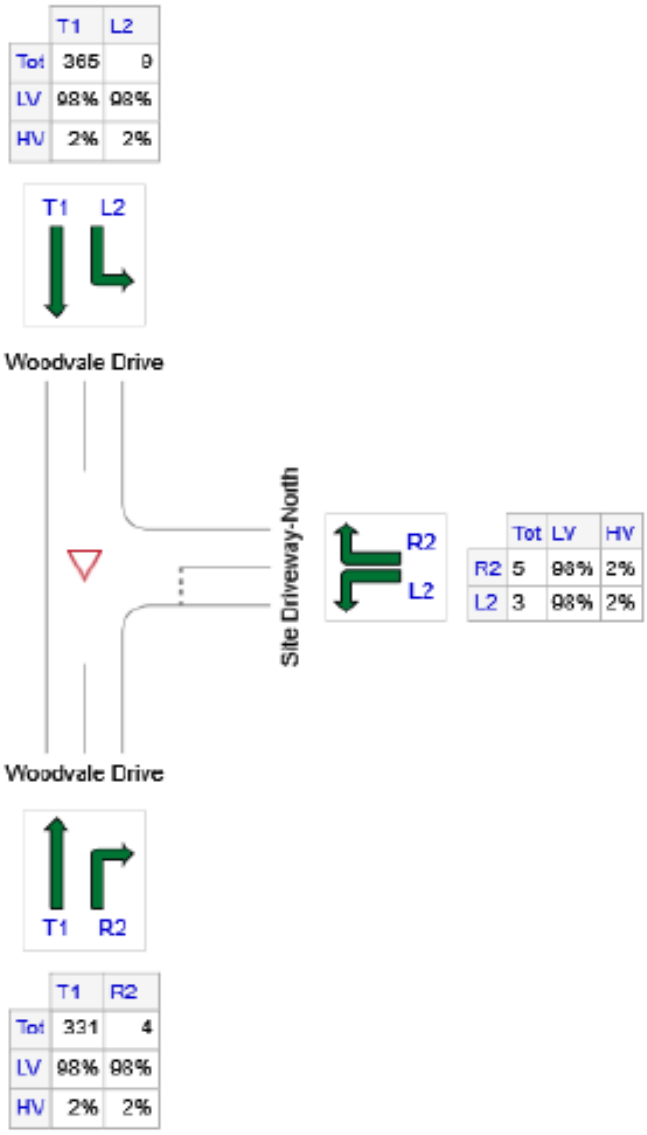


Figure 6-4 Development Access - 2 – AM Peak volume

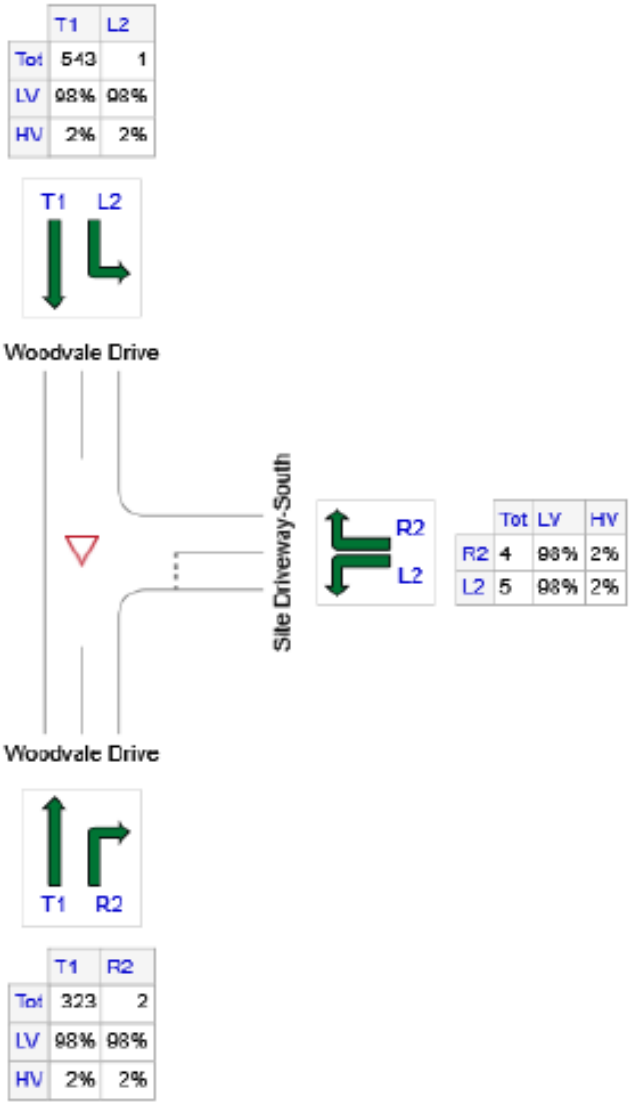
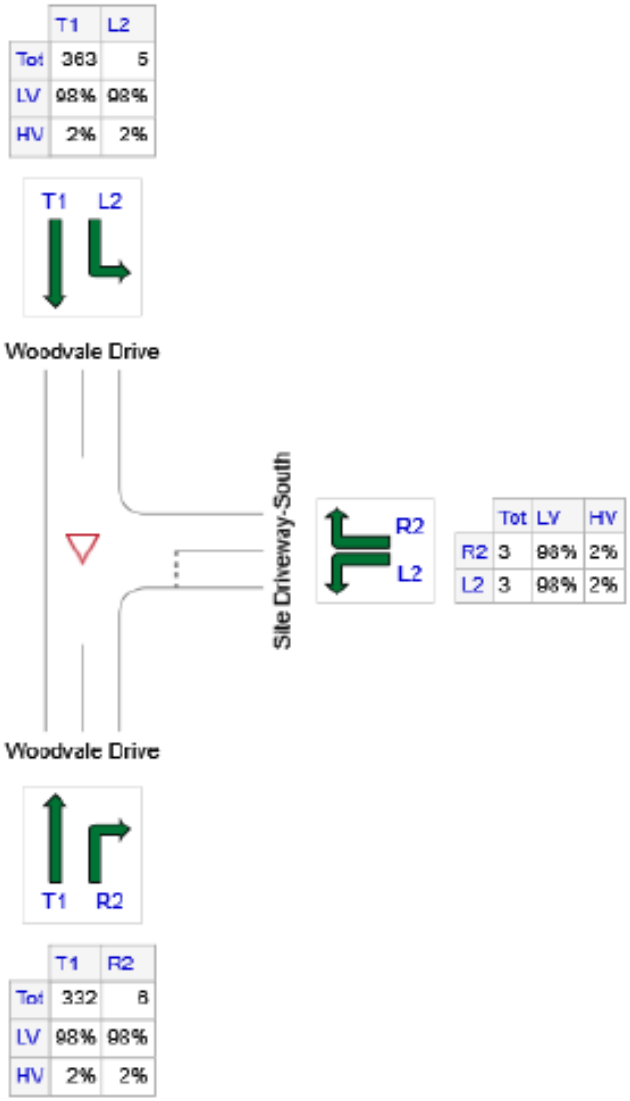


Figure 6-5 Development Access - 2 - PM Peak volume



6.4.3 Woodvale Drive and Project Accesses

The SIDRA layouts of Woodvale Drive / Northern Access and Woodvale Drive/Southern Access are shown in

Figure 6-6 and **Figure 6-7**. The analysis results for the intersections are presented in **Table 6-5** and **Table 6-6**.

The results show that the proposed intersections of the Woodvale Drive and project accesses would operate satisfactorily for the assessed scenarios.

Figure 6-6 Woodvale Drive/Development Access-1 SIDRA Layout

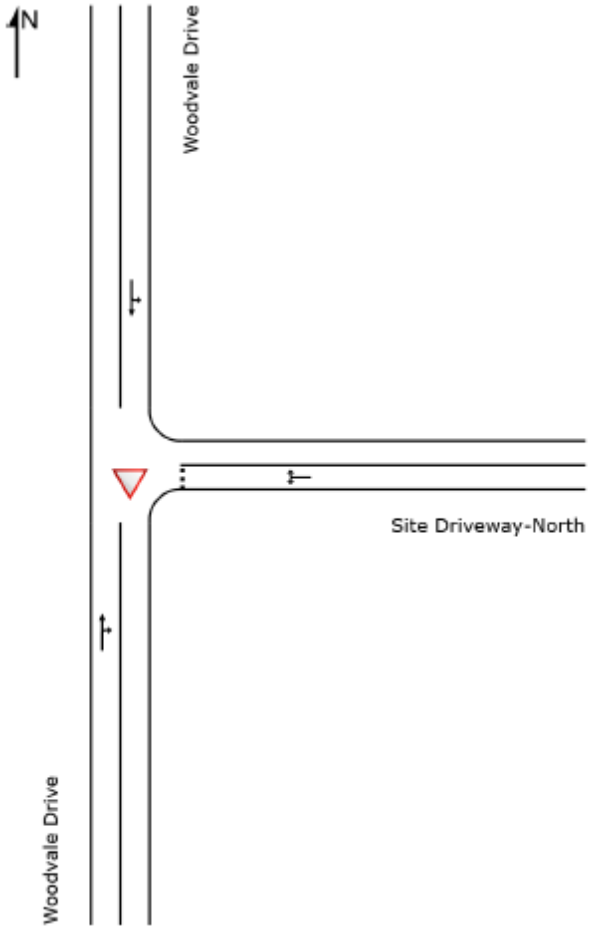


Figure 6-7 Woodvale Drive/Development Access-2 SIDRA Layout

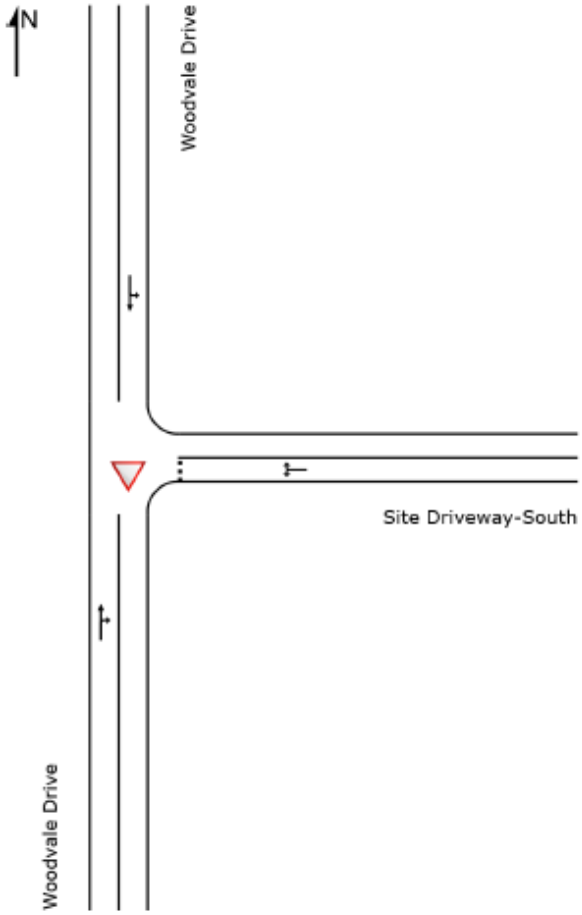


Table 6-5 Woodvale Drive/Development Access-1 SIDRA Results

Intersection Approach		Year 2025							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
South: Woodvale Drive	T	0.174	0.0	A	0.2	0.178	0.0	A	0.3
	R	0.174	8.5	A	0.2	0.178	7.3	A	0.3
East: Site Driveway-North	L	0.022	7.9	A	0.5	0.012	6.9	A	0.3
	R	0.022	11.1	B	0.5	0.012	9.2	A	0.3
North: Woodvale Drive	L	0.287	5.6	A	0.0	0.198	5.6	A	0.0
	T	0.287	0.0	A	0.0	0.198	0.0	A	0.0
All Vehicles		0.287	0.2	A	0.5	0.198	0.2	A	0.3

Table 6-6 Woodvale Drive/Development Access-2 SIDRA Results

Intersection Approach		Year 2025							
		AM Peak				PM Peak			
		DOS	Delay	LOS	95% Queue (m)	DOS	Delay	LOS	95% Queue (m)
South: Woodvale Drive	T	0.173	0.0	A	0.2	0.181	0.0	A	0.5
	R	0.173	8.5	A	0.2	0.181	7.2	A	0.5
East: Site Driveway-South	L	0.015	7.9	A	0.3	0.008	6.8	A	0.2
	R	0.015	11.1	B	0.3	0.008	9.2	A	0.2
North: Woodvale Drive	L	0.287	5.6	A	0.0	0.194	5.6	A	0.0
	T	0.287	0.0	A	0.0	0.194	0.0	A	0.0
All Vehicles		0.287	0.2	A	0.3	0.194	0.2	A	0.5

7 SUMMARY

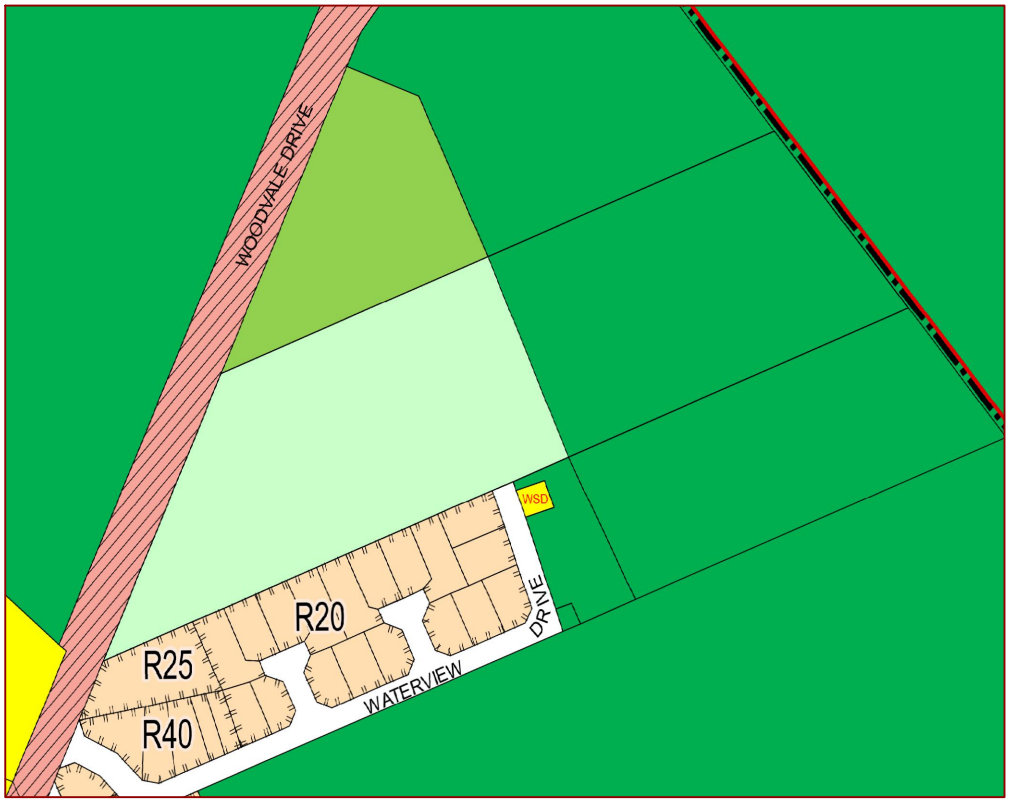
This assessment has been prepared in accordance with the *WAPC Transport Assessment Guidelines for Developments: Volume 2 – Planning Schemes, Structure Plans, and Activity Centre*.

The following conclusions have been made regarding the proposed development:

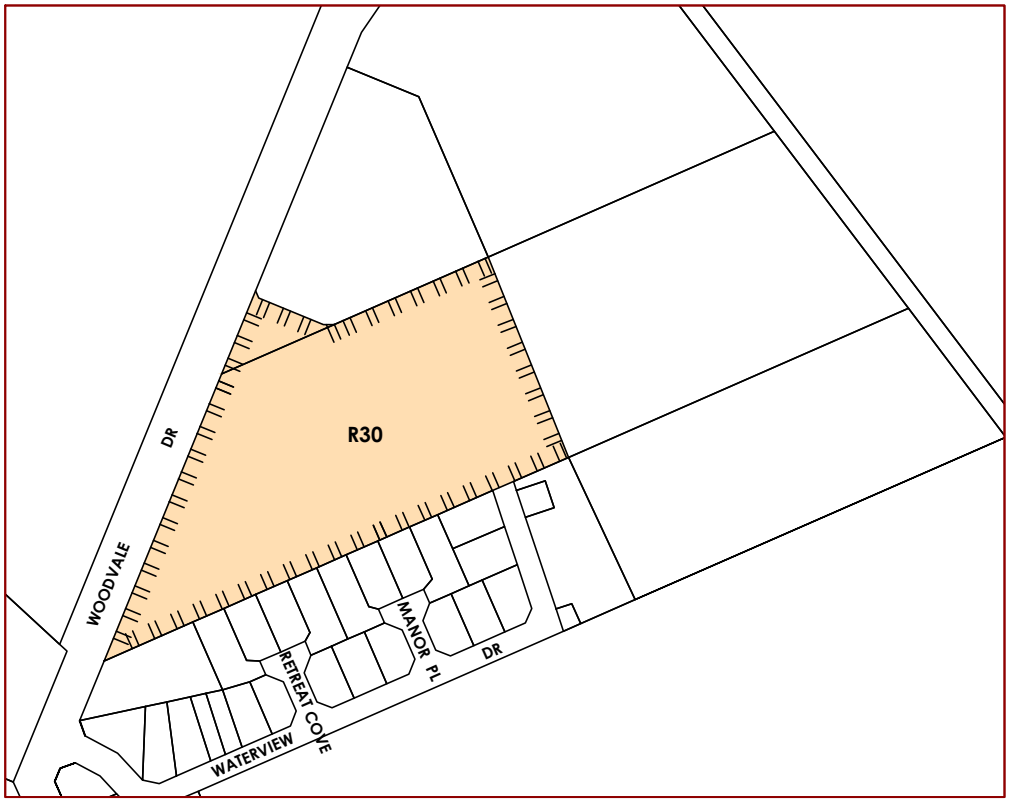
- The concept plan proposes 38 individual residential dwelling units.
- The Site is proposed to be accessed via two new intersections on Woodvale Drive.
- The Site is expected to generate 28 trips during the AM peak hour and 38 trips during the PM peak hour.
- Analysis of the proposed intersections has been undertaken using SIDRA software and the result of analysis shows that the proposed intersections will operate satisfactorily.
- Overall, the traffic impacts associated with the proposed development will be minimal on the internal and external transport network.

APPENDIX A

Proposed Site Layout



EXISTING ZONING



LEGEND

REGION SCHEME RESERVES (MRS)
- Parks and Recreation
- HS — Public Purposes - High School
- WSD — Public Purposes - Water Authority of WA

LOCAL SCHEME RESERVES
- Local Road
- Local Distributor Road

LOCAL SCHEME ZONES
- Residential
- Rural
- Private Community Purposes

OTHER CATEGORIES
- Scheme Area Boundary
- Local Government Boundary
- R20 — R Codes

PROPOSED ZONING

FIGURE 5

NORTH

0 25 50 75 100m

SCALE 1:4,000 (A4)

PROPOSED SCHEME AMENDMENT
LOCAL PLANNING SCHEME NO.3
WOODVALE

BURGESS DESIGN GROUP
TOWN PLANNING + URBAN DESIGN
PO Box 8779, Perth Business Centre 6849
www.burgessdesigngroup.com.au
P (08) 9328 6411
F (08) 9328 4062

Plan No: NOB WOO 7-02-05 Client: NOB
Date: 06.02.23 Planner: MB

CITY OF JOONDALUP

ROAD INTERFACE TO WOODVALE BAPTIST CHURCH TO MAXIMISE FLEXIBILITY AND INTEGRATION WITH URBAN DEVELOPMENT

DWELLINGS TO ADDRESS WETLAND

28

DR

WOODVALE

PUBLIC OPEN SPACE

36

50m WETLAND BUFFER

MRS P+R RESERVE & BUSH FOREVER AREA

CONSERVATION CATEGORY WETLAND

EXISTING HOUSESTEAD TO BE RETAINED

REAR BOUNDARY INTERFACE TO EXISTING DEVELOPMENT

DWELLINGS TO ADDRESS WOODVALE DRIVE AND ADJACENT PARKLAND

71

6

9

13

16

21

25

103

RETREAT

MANOR

08

109

4

10

17

19

NORTH

0 10 20 30 40 50m

SCALE 1:1000 (A3)

LEGEND

Subject Land

CONCEPT PLAN
LOT 28 & 36 WOODVALE DRIVE
WOODVALE
CITY OF JOONDALUP

BURGESS DESIGN GROUP
TOWN PLANNING + URBAN DESIGN
PO Box 8779, Perth Business Centre 6849
www.burgessdesigngroup.com.au
P (08) 9328 6411
F (08) 9328 4062

Plan No: NOB WOO 2-02b-01 Client: CLIENT
Date: 09.02.23 Planner: MB

APPENDIX B

Detailed SIDRA Outputs

MOVEMENT SUMMARY

Site: [Development Access-1-AM (Site Folder: General)]

AM Peak

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Woodvale Drive														
2	T1	325	2.0	342	2.0	0.174	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	59.8
3	R2	2	2.0	2	2.0	0.174	8.5	LOS A	0.0	0.2	0.01	0.00	0.01	54.4
Approach		327	2.0	344	2.0	0.174	0.1	NA	0.0	0.2	0.01	0.00	0.01	59.8
East: Site Driveway-North														
4	L2	3	2.0	3	2.0	0.022	7.9	LOS A	0.1	0.5	0.60	0.77	0.60	40.2
6	R2	8	2.0	8	2.0	0.022	11.1	LOS B	0.1	0.5	0.60	0.77	0.60	39.7
Approach		11	2.0	12	2.0	0.022	10.2	LOS B	0.1	0.5	0.60	0.77	0.60	39.8
North: Woodvale Drive														
7	L2	2	2.0	2	2.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.5
8	T1	541	2.0	569	2.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		543	2.0	572	2.0	0.287	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles		881	2.0	927	2.0	0.287	0.2	NA	0.1	0.5	0.01	0.01	0.01	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [Development Access-1-PM (Site Folder: General)]

AM Peak

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Woodvale Drive														
2	T1	331	2.0	348	2.0	0.178	0.0	LOS A	0.0	0.3	0.02	0.01	0.02	59.7
3	R2	4	2.0	4	2.0	0.178	7.3	LOS A	0.0	0.3	0.02	0.01	0.02	54.3
Approach		335	2.0	353	2.0	0.178	0.1	NA	0.0	0.3	0.02	0.01	0.02	59.6
East: Site Driveway-North														
4	L2	3	2.0	3	2.0	0.012	6.9	LOS A	0.0	0.3	0.47	0.66	0.47	42.5
6	R2	5	2.0	5	2.0	0.012	9.2	LOS A	0.0	0.3	0.47	0.66	0.47	41.8
Approach		8	2.0	8	2.0	0.012	8.3	LOS A	0.0	0.3	0.47	0.66	0.47	42.1
North: Woodvale Drive														
7	L2	9	2.0	9	2.0	0.198	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	55.3
8	T1	365	2.0	384	2.0	0.198	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
Approach		374	2.0	394	2.0	0.198	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		717	2.0	755	2.0	0.198	0.2	NA	0.0	0.3	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [Development Access-2-AM (Site Folder: General)]

AM Peak

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Woodvale Drive														
2	T1	323	2.0	340	2.0	0.173	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	59.8
3	R2	2	2.0	2	2.0	0.173	8.5	LOS A	0.0	0.2	0.01	0.00	0.01	54.4
Approach		325	2.0	342	2.0	0.173	0.1	NA	0.0	0.2	0.01	0.00	0.01	59.8
East: Site Driveway-South														
4	L2	5	2.0	5	2.0	0.015	7.9	LOS A	0.0	0.3	0.54	0.71	0.54	41.3
6	R2	4	2.0	4	2.0	0.015	11.1	LOS B	0.0	0.3	0.54	0.71	0.54	40.7
Approach		9	2.0	9	2.0	0.015	9.3	LOS A	0.0	0.3	0.54	0.71	0.54	41.1
North: Woodvale Drive														
7	L2	1	2.0	1	2.0	0.287	5.6	LOS A	0.0	0.0	0.00	0.00	0.00	55.5
8	T1	543	2.0	572	2.0	0.287	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
Approach		544	2.0	573	2.0	0.287	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.8
All Vehicles		878	2.0	924	2.0	0.287	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [Development Access-2-PM (Site Folder: General)]

AM Peak

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

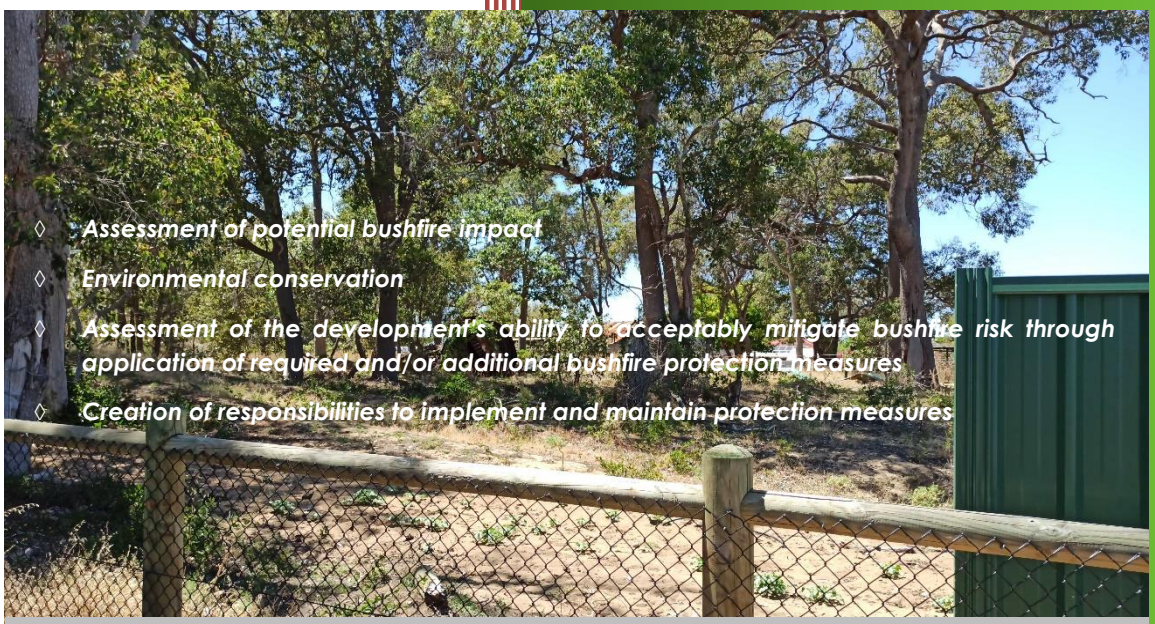
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Woodvale Drive														
2	T1	332	2.0	349	2.0	0.181	0.1	LOS A	0.1	0.5	0.02	0.01	0.02	59.5
3	R2	6	2.0	6	2.0	0.181	7.2	LOS A	0.1	0.5	0.02	0.01	0.02	54.1
Approach		338	2.0	356	2.0	0.181	0.2	NA	0.1	0.5	0.02	0.01	0.02	59.4
East: Site Driveway-South														
4	L2	3	2.0	3	2.0	0.008	6.8	LOS A	0.0	0.2	0.46	0.63	0.46	42.9
6	R2	3	2.0	3	2.0	0.008	9.2	LOS A	0.0	0.2	0.46	0.63	0.46	42.2
Approach		6	2.0	6	2.0	0.008	8.0	LOS A	0.0	0.2	0.46	0.63	0.46	42.5
North: Woodvale Drive														
7	L2	5	2.0	5	2.0	0.194	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	55.4
8	T1	363	2.0	382	2.0	0.194	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		368	2.0	387	2.0	0.194	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		712	2.0	749	2.0	0.194	0.2	NA	0.1	0.5	0.01	0.01	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

ATTACHMENT 6

BUSHFIRE PRONE PLANNING

Bushfire Management Plan (BMP)



Produced to meet the relevant requirements of STATE PLANNING POLICY 3.7 Planning in Bushfire Prone Areas & Guidelines

36 Woodvale Drive,
Woodvale

City of Joondalup

Local Planning Scheme Amendment

17 March 2023

Job Reference No:
220595

BPP GROUP PTY LTD T/A BUSHFIRE PRONE PLANNING

ACN: 39 166 551 784 | ABN: 39 166 551 784

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DOCUMENT CONTROL

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1.0	Original	9 December 2022
2.0	Site layout updates	17 March 2023
BMP (Master) Template v9.13		

DISTRIBUTION					
Destination		Version	No. Copies	Hard Copy	Electronic Copy
Person	Email				
Jon Burgess	jon@burgessdesigngroup.com.au	2.0		☐	☒
		-		☐	☐

Limitations: *The protection measures that will be implemented based on information presented in this Bushfire Management Plan are minimum requirements and they do not guarantee that buildings or infrastructure will not be damaged in a bushfire, persons injured, or fatalities occur either on the subject site or off the site while evacuating.*

This is substantially due to the unpredictable nature and behaviour of fire and fire weather conditions. Additionally, the correct implementation of the required protection measures (including bushfire resistant construction) and any other required or recommended measures, will depend upon, among other things, the ongoing actions of the landowners and/or operators over which Bushfire Prone Planning has no control.

All surveys, forecasts, projections and recommendations made in this report associated with the proposed development are made in good faith based on information available to Bushfire Prone Planning at the time. All maps included herein are indicative in nature and are not to be used for accurate calculations.

Notwithstanding anything contained therein, Bushfire Prone Planning will not, except as the law may require, be liable for any loss or other consequences whether or not due to the negligence of their consultants, their servants or agents, arising out of the services provided by their consultants.

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LIST OF FIGURES

SUMMARY STATEMENTS

THIS DOCUMENT – STATEMENT OF PURPOSE

The Bushfire Management Plan (BMP)

The BMP sets out the required package of bushfire protection measures to lessen the risks associated with a bushfire event. It establishes the responsibilities to implement and maintain these measures.

The BMP also identifies the potential for any negative impact on any environmental, biodiversity and conservation values that may result from the application of bushfire protection measures or that may limit their implementation.

Risks Associated with Bushfire Events

The relevant risks are the potential for loss of life, injury, or destroyed or damaged assets which results in personal loss and economic loss. For a given site, the level of that risk to persons and assets (the exposed elements) is a function of the potential threat levels generated by the bushfire hazard, and the level of exposure and vulnerability of the at risk elements to the threats.

Bushfire Protection Measures

The required package of protection measures is established by *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, its associated *Guidelines* and any other relevant guidelines or position statements published by the Department of Planning, Lands and Heritage. These measures are limited to those considered by the WA planning authorities as necessary to be addressed for the purpose of land use planning. They do not encompass all available bushfire protection measures as many are not directly relevant to the planning approval stage. For example:

- Protection measures to reduce the vulnerability of buildings to bushfire threats is primarily dealt with at the building application stage. They are implemented through the process of applying the Building Code of Australia (Volumes 1 and 2 of the national Construction Code) in accordance with WA building legislation and the application of construction requirements based on a building's level of exposure - determined as a Bushfire Attack Level (BAL) rating); or
- Protection measures to reduce the threat levels of consequential fire (ignited by bushfire and involving combustible materials surrounding and within buildings) and measures to reduce the exposure and vulnerability of elements at risk exposed to consequential fire, are not specifically considered.

The package of required bushfire protection measures established by the Guidelines includes:

- The requirements of the bushfire protection criteria which consist of:
    - Element 1: Location (addresses threat levels).
    - Element 2: Siting and Design of Development (addresses exposure levels of buildings).
    - Element 3: Vehicular Access (addresses exposure and vulnerability levels of persons).
    - Element 4: Water (addresses vulnerability levels of buildings).
    - Element 5: Vulnerable Tourism Land Uses (addresses exposure and vulnerability as per Elements 1-4 but in use specific ways and with additional considerations of persons exposure and vulnerability).
- The requirement to develop Bushfire Emergency Plans / Information for 'vulnerable' land uses for persons to prepare, respond and recover from a bushfire event (this addresses vulnerability levels).
- The requirement to assess bushfire risk and incorporate relevant protection measures into the site emergency plans for 'high risk' land uses (this addresses threat, exposure and vulnerability levels).

Compliance of the Proposed Development or Use with SPP 3.7 Requirements

The BMP assesses the capacity of the proposed development or use to implement and maintain the required 'acceptable' solutions and any additionally recommended bushfire protection measures - or its capacity to satisfy the policy intent through the justified application of additional bushfire protection measures as supportable 'alternative' solutions.

THE PROPOSED DEVELOPMENT/USE – BUSHFIRE PLANNING COMPLIANCE SUMMARY		
Environmental Considerations		**Assessment Outcome**
Will identified environmental, biodiversity and conservation values limit the full application of the required bushfire protection measures?		No
Will identified environmental, biodiversity and conservation values need to be managed in the implementation and maintenance of the bushfire protection measures - but not limit their application?		No
Required Bushfire Protection Measures The Acceptable Solutions of the Bushfire Protection Criteria (Guidelines)		**Assessment Outcome**
Element	The Acceptable Solutions	
1: Location	A1.1 Development location	Fully Compliant
2: Siting and Design of Development	A2.1 Asset Protection Zone (APZ)	Fully Compliant
3: Vehicular Access	A3.1 Public roads	Fully Compliant
	A3.2a Multiple access routes	Fully Compliant
	A3.2b Emergency access way	N/A
	A3.3 Through-roads	N/A
	A3.4a Perimeter roads	Fully Compliant
	A3.4b Fire service access route	N/A
	A3.5 Battle-axe legs	N/A
	A3.6 Private driveways	N/A
4: Water	A4.1 Identification of future water supply	N/A
	A4.2 Provision of water for firefighting purposes	N/A

1 PROPOSAL DETAILS AND THE BUSHFIRE MANAGEMENT PLAN

1.1 The Proposed Development/Use Details, Plans and Maps

The Proposal's Planning Stage For which certain bushfire planning documents are required to accompany the planning application.		Local Planning Scheme Amendment
Total Area of Subject Lot/Site		4.43 hectares
Number of Additional Lots Created		N/A
Primary Proposed Construction	**Type(s)**	N/A
	NCC Classification	N/A
Specific 'Bushfire Planning' Land Use Type When applicable, this classification establishes a requirement to conduct assessments and develop documents that are additional to this Bushfire Management Plan.		N/A
Description of the Proposed Development/Use		
Scheme amendment to rezone the site from 'Rural' to 'Residential' under the City of Joondalup Local Planning Scheme No.3. Following the Scheme Amendment, a subdivision is proposed to subdivide the existing Lot into 38 residential Lots, and 1 Public Open Space (POS). This BMP deals with the rezoning application.		
Description of Planned Staged Development and the Management of Potential Bushfire Planning Issues		
N/A		

ROAD INTERFACE TO WOODVALE BAPTIST CHURCH TO MAXIMISE FLEXIBILITY AND INTEGRATION WITH URBAN DEVELOPMENT

DWELLINGS TO ADDRESS WETLAND

28

DR

WOODVALE

PUBLIC OPEN SPACE

36

50m WETLAND BUFFER

MRS P+R RESERVE & BUSH FOREVER AREA

CONSERVATION CATEGORY WETLAND

EXISTING HOUSESTEAD TO BE RETAINED

REAR BOUNDARY INTERFACE TO EXISTING DEVELOPMENT

DWELLINGS TO ADDRESS WOODVALE DRIVE AND ADJACENT PARKLAND

71

6

9

13

16

21

25

103

RETREAT

MANOR

08

109

4

10

17

19

NORTH

0 10 20 30 40 50m

SCALE 1:1000 (A3)

LEGEND

Subject Land

CONCEPT PLAN
LOT 28 & 36 WOODVALE DRIVE
WOODVALE
CITY OF JOONDALUP

BURGESS DESIGN GROUP
TOWN PLANNING + URBAN DESIGN
PO Box 8779, Perth Business Centre 6849
www.burgessdesigngroup.com.au
P (08) 9328 6411
F (08) 9328 4062

Plan No: NOB WOO 2-02b-01 Client: CLIENT
Date: 09.02.23 Planner: MB

Figure 1.2

Proposed Development

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

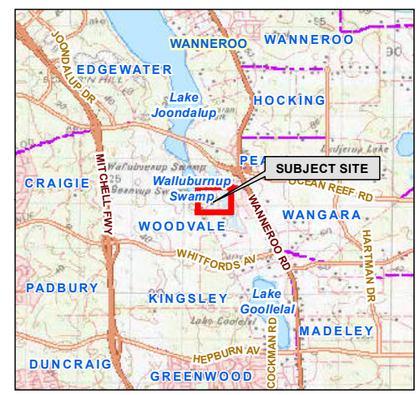
------ LEGEND ------

- Subject Site
- Other Lots
- Hydrant
- Indicative Subdivision

NOTE : SUBDIVISION DETAIL IS INDICATIVE ONLY AND SUBJECT TO REVISION

0 20 40 60 80
Metres

------ LOCALITY ------



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/03/2023
Map updated by: Ian Ross 17/03/2023
A3 Scale 1:2,000

BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig1-2_DEV_Lot36 95 Woodvale Dve.mxd

Figure 1.3

Location Plan

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

------ LEGEND ------

- Subject Site
- Local Government Authority
- Locality / Suburb
- Career Fire & Rescue Service

Reserves

- Reserves

Legislated Lands and Waters

- Crown Freehold - DBCA Managed
- Nature Reserve
- Section 5(1)(h) Reserve

DBCA Lands of Interest

- Crown Freehold - Dept Interest
- Bush Forever

0 200 400 600 800 1,000
Metres

------ LOCALITY ------

Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/03/2023
Map updated by: Ian Ross 17/03/2023
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BUSHFIRE PRONE PLANNING

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Figure 1.4

Bushfire Prone Area

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

0 50 100 150 200
Metres

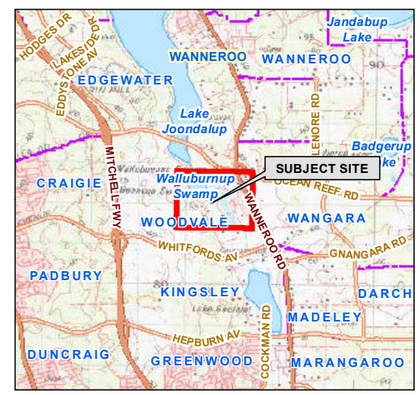
------ **LEGEND** ------

- Subject Site
- Other Lots
- Hydrant
- Indicative Subdivision

Bush Fire Prone Areas

- Bushfire Prone Areas (2021)

------ **LOCALITY** ------



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/03/2023
Map updated by: Ian Ross 17/03/2023
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BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig1-4_BPA_Lot36 95 Woodvale Dve.mxd

1.2 The Bushfire Management Plan (BMP)

1.2.1 Commissioning and Purpose

Landowner / proponent:	Noble Hodge
Bushfire Prone Planning commissioned to produce the BMP by:	Burgess Design Group
Purpose of the BMP:	To apply the requirements established by State Planning Policy 3.7: Planning in Bushfire Prone Areas (SPP 3.7) and accompany the planning proposal.
BMP to be submitted to:	City of Joondalup

1.2.2 Existing Documents with Implications for Development of this BMP

This section identifies any known assessments, reports or plans that have been conducted and prepared previously, or are being prepared concurrently, and are relevant to the subject site and the proposal/application. They potentially have implications for the assessment of bushfire threats and the implementation of the protection measures that are dealt with in the Bushfire Management Plan.

Table 1.4: Existing documents that may impact threat assessments and protection measure development.

EXISTING RELEVANT DOCUMENTS			
Existing Document	Relevant to the Proposal and the BMP	Copy Provided by Proponent / Developer	Title
Structure Plan	Yes	Yes	NOB WOO 2-02b 01 Concept Plan
Implications for the BMP: Preliminary Subdivision Concept Plan – for future land use.			
Bushfire Management Plan	No	N/A	
Implications for the BMP: None.			
Bushfire Emergency Plan or Information	No	N/A	
Implications for the BMP: None.			
Bushfire Risk – Assessment and Management Report	No	N/A	
Implications for the BMP: None.			
Environmental Asset or Vegetation Survey	No	N/A	
Implications for the BMP: None			
Landscaping (Revegetation) Plan	No	N/A	
Implications for the BMP: None.			

2 ENVIRONMENTAL CONSERVATION (DESKTOP ASSESSMENT)

Important: *This 'desktop' assessment must not be considered as a replacement for a full Environmental Impact Assessment. It is a summary of potential environmental values at the subject site, inferred from information contained in listed datasets and/or reports, which are only current to the date of last modification.*

These data sources must be considered indicative where the subject site has not previously received a site-specific environmental assessment by an appropriate professional.

Many bushfire prone areas also have high biodiversity values. Consideration of environmental priorities within the boundaries of the land being developed can avoid excessive or unnecessary modification or clearing of vegetation. Approval processes (and exemptions) apply at both Commonwealth and State levels.

Any 'modification' or 'clearing' of vegetation to reduce bushfire risk is considered 'clearing' under the ***Environmental Protection Act 1986*** (EP Act) and requires a clearing permit under the ***Environmental Protection (Clearing of Native Vegetation) Regulations 2004*** (Clearing Regulations) – unless for an exempt purpose.

Clearing native vegetation is an offence, unless done under a clearing permit or the clearing is for an exempt purpose. Exemptions are contained in the EP Act or are prescribed in the Clearing Regulations (note: these do not apply in environmentally sensitive areas).

The ***Department of Water and Environmental Regulation*** (DWER) is responsible for issuing 'clearing' permits and the framework for the regulation of clearing. Approvals under other legislation, from other agencies, may also be required, dependent on the type of flora or fauna present.

Local Planning Policy or Local Biodiversity Strategy: Natural areas that are not protected by the above Act and Regulation (or any other National or State Acts) may be protected by a local planning policy or local biodiversity strategy. Permission from the local government will be required for any modification or removal of native vegetation in these Local Natural Areas (LNA's). Refer to the relevant local government for detail.

For further Information refer to Guidelines v1.4, the Bushfire and Vegetation Factsheet - WAPC, Dec 2021 and https://www.der.wa.gov.au/our-work/clearing-permits

2.1 Existing Vegetation on Private Land

2.1.1 Declared Environmentally Sensitive Areas (ESA)

Table 2.1: Identification of relevant ESA.

IDENTIFICATION OF ESA							
ESA Class	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Wetlands and their 50m Buffer (Ramsar, conservation category and nationally important)	No	N/A	DBCA-010 and 011, 019, 040, 043, 044	☒	☐	☐	None
Bush Forever	Yes	Yes-Minor	DPLH-022, SPP 2.8	☒	☐	☐	Confirm with relevant agency
Threatened and Priority Flora + 50m Continuous Buffer	No	No	DBCA-036	Restricted Scale of Data Available (security)	☐	☐	None
Threatened Ecological Community	No	No	DBCA-038		☐	☐	None
Heritage Areas National / World	No	No	Relevant register or mapping	☐	☐	☐	None
Environmental Protection (Western Swamp Tortoise) Policy 2002	No	No	DWER-062	☐	☐	☐	None

DESCRIPTION OF THE IDENTIFIED AREA(S) OF VEGETATION

Lot 36 includes an area of Bush Forever/ Sumpland which contains riparian vegetation (Figure 2-1). This exists outside of the proposed development footprint (Figure 2-1).

2.1.2 Locally Significant Conservation Areas – Local Natural Areas (LNA)

Table 2.2: Identification of locally significant conservation areas.

IDENTIFICATION OF LNA							
Land with Environmental, Biodiversity and Conservation Values	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Native Vegetation / Remnant Vegetation	Yes	No	LNA	☒	☐	☐	Confirm with relevant agency
Riparian Zones	Possible	No		☒	☐	☐	Confirm with relevant agency
Foreshore Areas	No	No		☒	☐	☐	None
Habitat Vegetation and Wildlife Corridors	No	No		☒	☐	☐	None

DESCRIPTION OF THE IDENTIFIED AREA(S) OF VEGETATION

Lot 36 includes an area of Bush Forever/ Sumpland which contains riparian vegetation (Figure 2-1). This exists outside of the proposed development footprint (Figure 2-1).

2.2 Existing Vegetation on Public Land

Table 2.3: Identification of vegetation on public land with environmental, biodiversity and conservation values.

IDENTIFICATION OF PROTECTED VEGETATION ON PUBLIC LAND							
Land with Environmental, Biodiversity, Conservation and Social Values	Relevant to Proposal	Influence on Bushfire Threat Levels and / or Application of Bushfire Protection Measures	Relevant Dataset	Information Source(s) Applied to Identification of Relevant Vegetation			Further Action Required
				Dataset	Landowner or Developer	Environmental Asset or Vegetation Survey	
Legislated Lands (tenure includes national park/reserve, conservation park, crown reserve and state forest)	Yes	No	DBCA-011	☒	☐	☐	Confirm with relevant agency
Conservation Covenants	No	N/A	DPIRD-023	Only Available to Govt.	☐	☐	None
National World Heritage Areas	No	No	-	☒	☐	☐	None
Designated Public Open Space	No	No	-	☒	☐	☐	None

DESCRIPTION OF THE IDENTIFIED AREA(S) OF VEGETATION

Lot 36 includes an area of Crown Freehold legislated land (Figure 2-1). This exists outside of the proposed development footprint (Figure 2-1).

2.3 Planned Landscaping and/or Re-vegetation

Table 2.5: Identification of land subject to planned vegetation modification.

AREAS OF LAND PLANNED FOR RE-VEGETATION OR LANDSCAPING			
Land with Environmental, Biodiversity, Conservation and Social Values	Relevant to Proposal	Planned Vegetation Modification	Description
Riparian Zones	No	N/A	.
Foreshore Areas	No	N/A	
Wetland Buffers	No	N/A	
Legislated Lands	No	N/A	
Public Open Space	Yes	N/A	Existing public park Waterview Park (R 45894) is currently being managed by the City of Joondalup. Potential for landscaping/revegetation at the subdivision stage.
Road Verges	No	N/A	

2.4 Identified Requirement for Onsite Vegetation Modification or Removal

IDENTIFICATION OF POTENTIAL NATIVE VEGETATION MODIFICATION OR REMOVAL	
Has a requirement to modify or remove native vegetation to establish the required bushfire protection measures on the subject site been identified?	Yes
Comments: Lot 36 consists of an area of Native Forest vegetation with Eucalyptus trees up to 10m in height. These will need to be modified/removed as required.	
Is evidence provided (from relevant agencies, the environmental or planning consultant and/or the local government), that the required modification or removal of the vegetation can be achieved?	No
Comments: Proponent recognises that clearing and approval may be required during subdivision works to establish bushfire protection measures.	

2.5 Implications for the Proposed Development and the BMP

Table 2.6: Consideration of the implications that identified protected areas of vegetation (i.e., those with environmental and subject to conservation) have for the development proposal and the BMP.

THE IMPLICATIONS FOR THE PROPOSED DEVELOPMENT (AND BMP) FROM THE IDENTIFIED 'PROTECTED' VEGETATION	
The Determination of Bushfire Threat Levels and the Exposure of at Risk Elements	**Relevant to the BMP**
The ability to reduce the potential bushfire impact on the development through modification or removal of vegetation is limited due to the existence of 'protected' areas of vegetation.	No
The planned development will result in additional areas of bushfire prone vegetation (due to re-vegetation and/or landscaping) that will support fire and that may impact the development. This vegetation has been accounted for within the BMP.	N/A
The Application of Design and/or Construction Responses to Limit Vegetation Modification or Removal	**Relevant to the BMP**
Modify the development location to reduce exposure by increasing separation distance.	Considered but no alternative exists
Redesign development, structure plan or subdivision.	Not required
Reduction of lot yield where this can increase available separation distances.	Not required
Cluster development to limit modification or removal of vegetation.	N/A
Construct building(s) to the requirements corresponding to higher BAL ratings to reduce required separation distances.	Not required

Figure 2.1

Environmental Considerations

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

Walluburnup Swamp

WOODVALE DR

Lot 36

MANOR PL

RETREAT COVE

WATERVIEW DR

DUFFY TCE

------ LEGEND ------

- Subject Site
- Other Lots
- Hydrant
- Indicative Subdivision

Reserves
- Reserves

Legislated Lands and Waters
- Crown Freehold - DBCA Managed

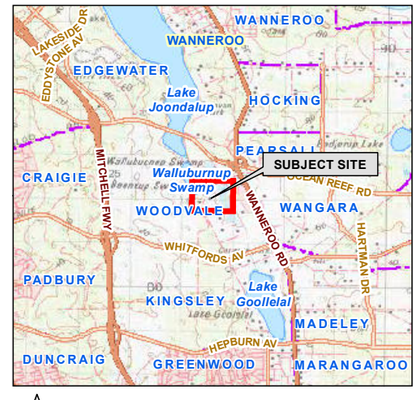
DBCA Lands of Interest
- Crown Freehold - Dept Interest
- Bush Forever

Geomorphic Wetlands
- Sumpland

Clearing Regulations
- Clearing Regulations

0 20 40 60 80 100
Metres

------ LOCALITY ------



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/03/2023
Map updated by: Ian Ross 17/03/2023
A3 Scale 1:2,500

BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig2-1_ENV_Lot36 95 Woodvale Dve.mxd

3 BUSHFIRE ATTACK LEVEL (BAL) ASSESSMENT

BUSHFIRE ATTACK LEVELS (BAL) - UNDERSTANDING THE RESULTS

The transfer (flux/flow) of radiant heat from the bushfire to a receiving object is measured in kW/m^2. The AS 3959:2018 BAL determination methodology establishes the ranges of radiant heat flux that correspond to each bushfire attack level. These are identified as BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ.

The bushfire performance requirements for certain classes of buildings are established by the Building Code of Australia (Vol. 1 & 2 of the NCC). The BAL will establish the bushfire resistant construction requirements that are to apply in accordance with AS 3959:2018 - Construction *of buildings in bushfire prone areas* and the NASH Standard – *Steel framed construction in bushfire areas (NS 300 2021),* whose solutions are deemed to satisfy the NCC bushfire performance requirements.

DETERMINED BAL RATINGS

A BAL Certificate can be issued for a determined BAL. A BAL can only be classed as 'determined' for an existing or future building/structure when:

1. It's final design and position on the lot are known and the stated separation distance from classified bushfire prone vegetation exists and can justifiably be expected to remain in perpetuity; or

2. It will always remain subject to the same BAL regardless of its design or position on the lot after accounting for any regulatory or enforceable building setbacks from lot boundaries as relevant and necessary (e.g., R-codes, restrictive covenants, defined building envelopes) or the retention of any existing classified vegetation either onsite or offsite.

If the BMP derives determined BAL(s), the BAL Certificate(s) required for submission with building applications can be provided, using the BMP as the assessment evidence.

INDICATIVE BAL RATINGS

A BAL Certificate cannot be issued for an indicative BAL. A BAL will be classed as 'indicative' for an existing or future building/structure when the required conditions to derive a determined BAL are not met.

This class of BAL rating indicates what BAL(s) could be achieved and the conditions that need to be met are stated.

Converting the indicative BAL into a determined BAL is conditional upon the currently unconfirmed variable(s) being confirmed by a subsequent assessment and evidential documentation. These variables will include the future building(s) location(s) being established (or changed) and/or classified vegetation being modified or removed to establish the necessary vegetation separation distance. This may also be dependent on receiving approval from the relevant authority for that modification/removal.

BAL RATING APPLICATION – PLANNING APPROVAL VERSUS BUILDING APPROVAL

1. **Planning Approval**: SPP.3.7 establishes that where BAL- LOW to BAL-29 will apply to relevant future construction (or existing structures for proposed uses), the proposed development may be considered for approval (dependent on the other requirements of the relevant policy measures being met). That is, BAL40 or BAL-FZ are not acceptable on planning grounds (except for certain limited exceptions).

   Because planning is looking forward at what can be achieved, as well as looking at what may currently exist, both determined and indicative BAL ratings are acceptable assessment outcomes on which planning decisions can be made (including conditional approvals).

2. **Building Approval:** The Building Code of Australia (Vol. 1 & 2 of the NCC) establishes that relevant buildings in bushfire prone areas must be constructed to the bushfire resistant requirements corresponding to the BAL rating that is to apply to that building. Consequently, a determined BAL rating and the BAL Certificate is required for a building permit to be issued - an indicative BAL rating is not acceptable.

3.1 BAL Assessment Summary - Contour Map Format

INTERPRETATION OF THE BAL CONTOUR MAP

The BAL contour map is a diagrammatic representation of the results of the bushfire attack level assessment.

The map presents different coloured contours extending out from the areas of classified vegetation. Each contour represents a set range of radiant heat flux that potentially will transfer to an exposed element (building, person or other defined element), when it is located within that contour.

Each of the set ranges of radiant heat flux corresponds to a different BAL rating as defined by the AS 3959:2018 BAL determination methodology.

The width of each shaded BAL contour will vary dependant on both the BAL rating and the relevant parameters (calculation inputs) for the subject site. Their width represents the minimum and maximum vegetation separation distances that correspond to each BAL rating (refer to the relevant table below for these distances).

The areas of classified vegetation to be considered in developing the BAL contours, are those that will remain at the intended end state of the subject development once earthworks, clearing and/or landscaping and re-vegetation have been completed. Variations to this statement that may apply include:

- Both pre and post development BAL contour maps are produced; and/or
- Each stage of a development is assessed independently.

3.1.1 The BAL Determination Method(s) Applied and the Location of Data and Results

Procedure Method (AS 3959:2018)	Applied to the BAL Assessment	Location of the Site Assessment Data			Location of the Results
		Classified Vegetation and Topography Map(s)	Calculation Input Variables		Assessed Bushfire Attack Levels and/or Radiant Heat Levels
			Summary Data	Detailed Data with Explanatory and Supporting Information	
Method 1 (Simplified)	Yes	Figure 3.1 and Figure 3.1.1	Table 3.1	Appendix A1	BAL Contour Map Figure 3.2

Figure 3.1

Classified Vegetation & Topography

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

Walluburnup Swamp
WOODVALE DR
MANOR PL
WATERVIEW DR
DUFFY TCE
Lot 36
AREA : 1 Class (A) Forest Effective slope: 0°
AREA : 1 Class (A) Forest Effective slope: 0°
AREA : 2 Class (B) Woodland Effective slope: 0°
AREA : 3 Class (D) Scrub Effective slope: >0° to 5°
AREA : 4 Class (G) Grassland Effective slope: >0° to 5°
AREA : 5 Class (G) Grassland Effective slope: 0°
AREA : 5 Class (G) Grassland Effective slope: 0°
AREA : 5 Class (G) Grassland Effective slope: 0°
AREA : 6 Excluded
AREA : 6 Excluded
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 m 20 m 21 m 22 m 23 m 24 m 25 m

------ LEGEND ------

- Subject Site
- Other Lots
- Photo & Direction
- Hydrant
- Indicative Subdivision

150m Vegetation Assessment Area

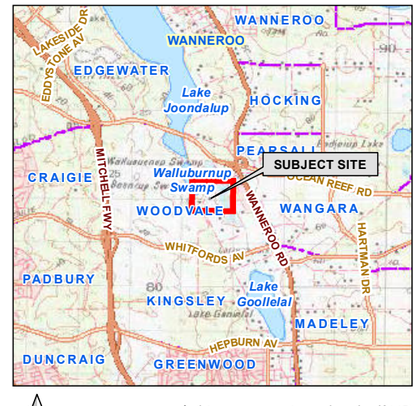
- 150m from Subject Site

Classified Vegetation

- Class (A) Forest
- Class (B) Woodland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2

0 20 40 60 80 100
Metres

------ LOCALITY ------



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
Projection: Universal Transverse Mercator Units: Metre
Map compiled by: Ian Ross 17/03/2023
Map updated by: Ian Ross 17/03/2023
A3 Scale 1:2,500

BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig3-1_VEG_Lot36 95 Woodvale Dve.mxd

Figure 3.1.1

Classified Vegetation & Topography (Post Development)

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

------ LEGEND ------

- Subject Site
- Other Lots
- Hydrant
- Indicative Subdivision

150m Vegetation Assessment Area

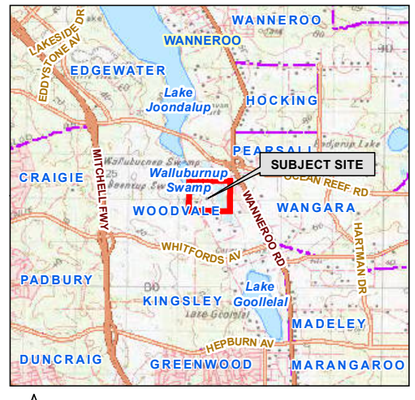
- 150m from Subject Site

Classified Vegetation

- Class (A) Forest
- Class (B) Woodland
- Class (D) Scrub
- Class (G) Grassland
- Exclusion 2.2.3.2

0 20 40 60 80 100
Metres

------ LOCALITY ------



Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
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A3 Scale 1:2,500

BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig3-1-1_VEG_POST_Lot36 95 Woodvale Dve.mxd

CONSTRUCTION OF THE BAL CONTOUR MAP(S) – RELEVANT CLASSIFIED VEGETATION	
Identification of Classified Vegetation that is Relevant to the Production of the BAL Contour Map(s)	Relevant Map
All identified areas of classified vegetation that exist at the time of the site assessment – both within the subject site (onsite) and external to the subject site (offsite) will be the relevant vegetation.	Figure 3.1
All identified classified vegetation areas, or portions of areas, within a proposed subdivision are excluded. It is the classified vegetation external to the subdivision boundaries that is the relevant vegetation. This approach is applied to indicate the achievable bushfire attack levels within the subdivision and the resultant area of developable land on all lots where buildings will be subject to BAL-29 or less. It is based on the following assumptions: 1. Any classified vegetation within the subdivision can potentially be managed or removed by the developer and/or landowner to meet asset protection zone standards; and 2. Future development and consequent removal/management of vegetation that may take place on any adjoining land cannot be part of considerations for the subdivision.	Figure 3.1
All identified areas of classified vegetation that exist at the time of the site assessment – both within the subject site (onsite) and external to the subject site (offsite) will be the relevant vegetation for the pre-development BAL contour map.	Figure 3.1
The areas of classified vegetation that will remain at the intended end state of the subject development once earthworks, any clearing and/or landscaping and re-vegetation have been completed, will be the relevant vegetation for the post-development BAL contour map.	Figure 3.1.1
Supporting Assessment Details: Area 1 Forest will be removed for the proposed subdivision as shown in Figure 3-1.	

3.1.3 Summary Site Data Applied to Construction of the BAL Contour Map(s)

Table 3.1: Summary of applied calculation input variables applied to determining the site specific separation distances corresponding to each bushfire attack level.

SUMMARY OF CALCULATION INPUT VARIABLES (INCLUDING SITE DATA) APPLIED TO THE DETERMINATION OF SEPARATION DISTANCES CORRESPONDING TO BUSHFIRE ATTACK LEVELS [1]												
Applied BAL Determination Method		METHOD 1 - SIMPLIFIED PROCEDURE (AS 3959:2018 CLAUSE 2.2)										
Calculation Variables Corresponding to BAL Determination Method												
Methods 1 and 2		Method 1	Method 2									
Vegetation Classification		FDI	Effective Slope		Site Slope	FFDI or GFDI	Flame Temp.	Elevation of Receiver	Flame Width	Fireline Intensity	Flame Length	Modified View Factor
			Applied Range	Measured								
Area	Class		degree range	degrees	degrees		K	metres	metres	kW/m	metres	% Reduction
1	(A) Forest	80	Upslope or flat 0	flat 0								
2	(B) Woodland	80	Upslope or flat 0	flat 0								
3	(D) Scrub	80	Downslope >0-5	d/slope 4								
4	(G) Grassland	80	Downslope >0-5	d/slope 4								
5	(G) Grassland	80	Upslope or flat 0	flat 0								
6	Excluded cl 2.2.3.2(e & f)	80	N/A	N/A								

[1] All data and information supporting the determination of the classifications and values stated in this table and any associated justification, is presented in Appendix A.

Where the values are stated as 'default' these are either the values stated in AS 3959:2018, Table B1 or the values calculated as intermediate or final outputs through application of the equations of the AS 3959:2018 BAL determination methodology. They are not values derived by the assessor.

Table 3.2: Vegetation separation distances corresponding to radiant heat levels and illustrated as BAL contours in Figure 3.2.

THE CALCULATED VEGETATION SEPARATION DISTANCES CORRESPONDING TO THE STATED LEVEL OF RADIANT HEAT [1]									
Vegetation Classification		Separation Distances Corresponding to Stated Level of Radiant Heat (metres)							
		Bushfire Attack Level						Maximum Radiant Heat Flux	
Area	Class	BAL-FZ	BAL-40	BAL-29	BAL-19	BAL12.5	BAL-LOW	10 kW/m^2	2 kW/m^2
1	(A) Forest	<16	16-<21	21-<31	31-<42	42-<100	>100		
2	(B) Woodland	<10	10-<14	14-<20	20-<29	29-<100	>100		
3	(D) Scrub	<11	11-<15	15-<22	22-<31	31-<100	>100		
4	(G) Grassland	<7	7-<9	9-<14	14-<20	20-<50	>50		
5	(G) Grassland	<6	6-<8	8-<12	12-<17	17-<50	>50		
6	Excluded cl 2.2.3.2(e & f)	N/A	N/A	N/A	N/A	N/A	N/A		

[1] All calculation input variables are presented in Table 3.1. The summary 'printouts' of calculation input and output values for each area of classified vegetation are presented in Appendix A.

Figure 3.2

BAL Contour Map

Lot 36 on Diagram 032799, Area : 4.3648 ha
and Part Lot 28
Woodvale Drive,
WOODVALE 6026
CITY OF JOONDALUP

Wallubumup Swamp
WOODVALE DR
AREA 5
AREA 4
AREA 3
Lot 36
AREA 6
AREA 5
AREA 2
AREA 5
MANOR PL
RETREAT COVE
WATERVIEW DR
DUFFY TCE

------ **LEGEND** ------

- Subject Site
- Other Lots
- Hydrant
- Indicative Subdivision

100m Vegetation Assessment Area

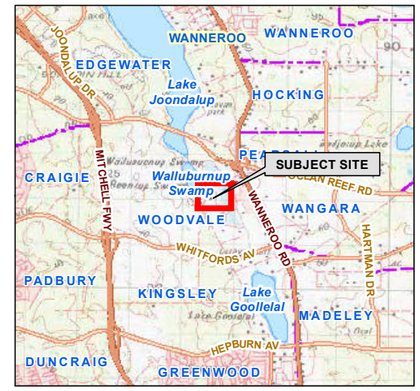
- 100m from Subject Site
- Classified Vegetation Boundary

Indicative Bushfire Attack Levels

- BAL FZ
- BAL 40
- BAL 29
- BAL 19
- BAL 12.5
- BAL LOW

0 20 40 60 80 100
Metres

------ **LOCALITY** ------



N

Aerial Imagery : Landgate/SLIP
Image Date : Oct 2022

Coordinate System: GDA 1994 MGA Zone 50
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BUSHFIRE PRONE PLANNING

Map Document Path / Name: K:\Projects\Jobs 2022\220594 - Lot 36 (95) Woodvale Drive Woodvale (BMP SD)\220594 - BMP SD - Jul 2022\Mapping\MXD\220594_Fig3-2_BAL_Lot36 95 Woodvale Dve.mxd

4 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA (GUIDELINES V1.4)

4.1 Bushfire Protection Criteria Elements Applicable to the Proposed Development/Use

APPLICATION OF THE CRITERIA, ACCEPTABLE SOLUTIONS AND PERFORMANCE ASSESSMENT

The criteria are divided into five elements – location, siting and design, vehicular access, water and vulnerable tourism land uses. Each element has an intent outlining the desired outcome for the element and reflects identified planning and policy requirements in respect of each issue.

The example acceptable solutions (bushfire protection measures) provide one way of meeting the element's intent. Compliance with these automatically achieves the element's intent and provides a straightforward pathway for assessment and approval.

Where the acceptable solutions cannot be met, the ability to develop design responses (as alternative solutions that meet bushfire performance requirements) is an alternative pathway that is provided by addressing the applicable performance principles (as general statements of how best to achieve the intent of the element).

A merit based assessment is established by the SPP 3.7 and the Guidelines as an additional alternative pathway along with the ability of using discretion in making approval decisions (sections 2.5, 2.6 and 2.7). This is formally applied to certain development (minor and unavoidable – sections 5.4.1 and 5.7). Relevant decisions by the State Administrative Tribunal have also supported this approach more generally.

Elements 1 – 4 should be applied for all strategic planning proposals, subdivision or development applications, except for vulnerable tourism land uses which should refer to Element 5. Element 5 incorporates the bushfire protection criteria in Elements 1 – 4 but caters them specifically to tourism land uses. (Guidelines DPLH 2021v1.4)

The Bushfire Protection Criteria	Applicable to the Proposed Development/Use
Element 1: Location	Yes
Element 2: Siting and Design	Yes
Element 3: Vehicular Access	Yes
Element 4: Water	Yes
Element 5: Vulnerable Tourism Land Uses	No

4.2 Local Government Variations to Apply

Local governments may add to or modify the acceptable solutions to recognise special local or regional circumstances (e.g., topography / vegetation / climate). These are to be endorsed by both the WAPC and DFES before they can be considered in planning assessments. (Guidelines DPLH 2021v1.4).	
Do endorsed regional or local variations to the acceptable solutions apply to the assessments against the Bushfire Protection Criteria for the proposed development /use?	None known or identified

4.3 Assessment Statements for Element 1: Location

LOCATION					
Element Intent	To ensure that strategic planning proposals, subdivision and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property and infrastructure.				
Proposed Development/Use – Relevant Planning Stage	(SP) Strategic planning proposal and structure plan where the lot layout is not known				
Element Compliance Statement	The proposed development/use achieves the intent of the element by being fully compliant with all applicable acceptable solutions.				
Pathway Applied to Provide an Alternative Solution	N/A				
Acceptable Solutions - Assessment Statements *All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.*					
Solution Component Check Box Legend	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant		
A1.1 Development location	**Applicable:**	Yes	**Compliant:**	Yes	
ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES					
☑ ☐ ☐ The development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL-29 or below.					
Supporting Assessment Details: The proposed development provides an area of land within the subject lot that can be considered suitable for development as BAL-40 or BAL-FZ construction standards will not be required to be applied. This meets the requirements established by Acceptable Solution A1.1 and its associated explanatory note.					
ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)					
"Consideration should be given to the site context where 'area' is the land both within and adjoining the subject site. The hazards remaining within the site should not be considered in isolation of the hazards adjoining the site, as the potential impact of a bushfire will be dependent on the wider risk context, including how a bushfire could affect the site and the conditions for a bushfire to occur within the site." **Strategic Planning Proposals:** Consider the threat levels from any vegetation adjoining and within the subject site for which the potential intensity of a bushfire in that vegetation would result in it being classified as an Extreme Bushfire Hazard Level (BHL). Identify any proposed design strategies to reduce these threats. **Structure Plans (lot layout known) and Subdivision Applications:** As for strategic planning proposals but within the subject site the relevant threat levels to consider are the radiant heat levels represented by BAL-FZ and BAL-40 ratings.					

The Hazard Within the Subject Site

The existing lot is partially vegetated with native vegetation classified as Class A Forest and Grassland. To the east of the Lot the vegetation is classed as Class D Scrub, which is over a low lying wetland/sumpland area. The impact of the slopes under the vegetation will be dependent on a bushfire's direction of travel, but slopes in the range of zero to five degrees do exist and bushfire travelling upslope will have increased intensity and rate of spread.

The application is for a rezoning to residential, however at a later stage the ability to establish a BAL-29 dimensioned APZ within each proposed lot's boundaries removes the threat of greater levels of radiant heat or flame contact upon a future dwelling.

The Hazard Adjoining the Subject Site

Bushfire prone vegetation within the rural residential locality exists as native vegetation classified as Class A Forest, Class D Scrub and Class G Grassland. Most of the land within the locality supports this vegetation.

The impact of the slope under the vegetation will be dependent on a bushfire's direction of travel, but slopes in the range of zero to five degrees downslope from the proposed lots do exist. Bushfire travelling upslope will have increased intensity and rate of spread. However, the adjoining land cannot be considered as rugged (which would present greater potential for dynamic fire behaviours to develop leading to increasing fire intensity extreme bushfire events).

A large reserve identified a bush forever is situated on the eastern side of the lot (internal and external). This consists of a Grassland and Scrub vegetation. To the west, another large reserve exists as Walluburnup Swamp, that is Classified as Class A Forest vegetation, with portions of grassland surrounding.

Consequently, the potential exists for intense bushfire behaviour to occur within these areas of bushfire prone vegetation. The potential bushfire impact on persons and property within the future land use will be to increase the level of ember attack in the event of a bushfire.

This ember threat will be mitigated by the application of appropriate building design, bushfire construction requirements and the ongoing maintenance of the BAL-29 dimensioned APZ, for any future development to ensure buildings will not be impacted by consequential fire within combustible materials used, stored or accumulated within the APZ.

4.4 Assessment Statements for Element 2: Siting and Design

SITING AND DESIGN OF DEVELOPMENT				
Element Intent	To ensure that the siting and design of development minimises the level of bushfire impact. (BPP Note: not building/construction design)			
Proposed Development/Use – Relevant Planning Stage	(SP) Strategic planning proposal and structure plan where the lot layout is not known			
Element Compliance Statement	The proposed development/use achieves the intent of the element by being fully compliant with all applicable acceptable solutions.			
Pathway Applied to Provide an Alternative Solution	N/A			
Acceptable Solutions - Assessment Statements *All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.*				
Solution Component Check Box Legend	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant	
A2.1 Asset Protection Zone (APZ)	**Applicable**: Yes	**Compliant**: Yes		

UNDERSTANDING THE APZ PLANNING ASSESSMENT VERSUS APZ IMPLEMENTATION REQUIREMENTS

Note: Appendix B: 'Onsite Vegetation Management' provides further information regarding the different APZ dimensions that can be referenced, their purpose and the specifications of the APZ that is to be established and maintained.

To reduce risk to buildings (and indirectly to persons) from a bushfire event, a key bushfire protection measure required to be implemented is reducing the exposure of building elements to the direct bushfire threats of flame contact, radiant heat and embers and the indirect threat of consequential fires that result from the subsequent ignition of other combustible materials that may be constructed, stored or accumulate in the area surrounding buildings.

This is achieved by separating existing and/or proposed buildings from areas of classified bushfire prone vegetation. The total area of separation is identified as the Asset Protection Zone (APZ), which exists as an area of minimal fire fuels (or no fuel) and is considered able and likely to remain a low threat and/or be maintained to a low threat state in perpetuity. The required separation distances will vary according to the site specific conditions.

THE APZ PLANNING ASSESSMENT: To achieve planning approval for this factor it must be demonstrated that separation distances that correspond to a maximum level of radiant transfer to a building (29 kW/m^2), either exist or can be established (with certain exceptions). These separation distances are the dimensions of the **'Planning BAL-29' APZ**.

The purpose of this planning assessment is to identify and justify how this low threat area (the Planning BAL-29' APZ) can exist – or not.

THE DIMENSIONS OF THE 'PLANNING BAL-29' APZ MAY EXTEND OUTSIDE SUBJECT LOT BOUNDARIES. THE APZ MAY NOT BE EQUIDISTANT AROUND A BUILDING AS THE REQUIRED SEPARATION DISTANCES DEPEND ON THE TYPE OF VEGETATION PRESENT IN EACH DIRECTION ALONG WITH OTHER SITE VARIABLES.

IT IS IMPORTANT TO UNDERSTAND THAT THE 'PLANNING BAL-29' APZ IS NOT NECESSARILY THE SIZE OF THE APZ THAT MUST BE PHYSICALLY ESTABLISHED AND MAINTAINED BY A LANDOWNER. IT IS A SCREENING TOOL FOR MAKING PLANNING APPROVAL DECISIONS.

THE APZ TO BE IMPLEMENTED: The required dimensions to be established and maintained by the landowner will be those that correspond to the determined BAL rating of a relevant building but limited to the land of the subject lot

(with limited exceptions). The requirement for a greater dimension within a lot will only exist if it is required by the relevant local government's annual firebreak / hazard reduction notice or the APZ size is increased as an additional bushfire protection measure as a recommendation of this BMP.

Within this BMP it is the 'Planning BAL-29' APZ that will be identified on maps, diagrams and in tables as necessary.

The exceptions are the data provided in Appendix B part B1 and when a Property Bushfire Management Statement is required to be produced for a development application, in which case the '**Landowner' APZ** dimensions will be shown on the site map (refer to s6.3.1 when relevant).

	ASSESSMENT AGAINST THE REQUIREMENTS ESTABLISHED BY THE GUIDELINES
☑ ☐ ☐	**APZ Width:** The proposed (or a future) habitable building(s) on the lot(s) of the proposed development - or an existing building for a proposed change of use – can be (or is) located within the developable portion of the lot and be surrounded by a 'Planning BAL-29' APZ of the required dimensions (measured from any external wall or supporting post or column to the edge of the classified vegetation), that will ensure their exposure to the potential radiant heat impact of a bushfire does not exceed 29 kW/m^2.
☐ ☐ ⊘	**Restriction on Building Location:** It has been identified that the current developable portion of a lot(s) provides for the proposed future (or a future) building/structure location that will result in that building/structure being subject to a BAL-40 or BAL-FZ rating. Consequently, it may be considered necessary to impose the condition that a restrictive covenant to the benefit of the local government pursuant to section 129BA of the Transfer of Land Act 1893, is to be placed on the certificate(s) of title of the proposed lot(s) advising of the existence of a restriction on the use of that portion of land (refer to Code F3 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines s5.3.2).
☑ ☐ ☐	**APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be contained solely within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use – is situated.
☐ ☐ ⊘	**APZ Location:** The required dimensions for a 'Planning BAL-29' APZ can be partly established within the boundaries of the lot(s) on which the proposed (or a future) habitable building(s) - or an existing building(s) for a proposed change of use – is situated. The balance of the APZ would exist on adjoining land that satisfies the exclusion requirements of AS 3959:2018 cl 2.2.3.2 for low threat vegetation and non-vegetated areas.
☑ ☐ ☐	**APZ Location:** It can be justified that any adjoining (offsite) land forming part of a 'Planning BAL-29' APZ will: • If non-vegetated, remain in this condition in perpetuity; and/or • If vegetated, be low threat vegetation managed in a minimal fuel condition in perpetuity.
☑ ☐ ☐	**APZ Management:** The area of land (within each lot boundary), that is to make up the required 'Landowner' APZ dimensions (refer to Appendix B, Part B1), can and will be managed in accordance with the requirements of the Guidelines Schedule 1 'Standards for Asset Protection Zones' (refer to Appendix B).
☐ ☐ ⊘	**Subdivision Staging:** There are undeveloped future stages of subdivision, containing bushfire prone vegetation, that have been taken into consideration for their potentially 'temporary' impact on the ability to establish a 'Planning BAL-29' APZ on adjoining developed lots. A staging plan is developed to manage this.

☑ ☐ ☐	**Firebreak/Hazard Reduction Notice:** Any additional requirements established by the relevant local government's annual notice to install firebreaks and manage fuel loads (issued under s33 of the Bushfires Act 1954), can and will be complied with.
Supporting Assessment Details: APZ will be dealt with at a subsequent development stage. Post-development – all remaining vegetation will be managed and maintained to a low threat state in perpetuity. Appropriate separation around future development may be required to be incorporated into design at future planning stages.	
ASSESSMENTS APPLYING THE GUIDANCE ESTABLISHED BY THE WAPC ELEMENT 1 & 2 POSITION STATEMENT (2019)	
Strategic Planning Proposals: "At this planning level there may not be enough detail to demonstrate compliance with this element. The decision-maker may consider this element is satisfied where A1.1 is met." **Structure Plans (lot layout known) and Subdivision Applications: "**Provided that Element 1 is satisfied, the decision-maker may consider approving lot(s) containing BAL-40 or BAL-FZ under the following scenarios.	
There is vegetation with demonstrated biodiversity, landscape amenity and/or conservation values, that it is identified for retention.	

4.5 Assessment Statements for Element 3: Vehicular Access

VEHICULAR ACCESS					
Element Intent	To ensure that the vehicular access serving a subdivision/development is available and safe during a bushfire event.				
Proposed Development/Use – Relevant Planning Stage	(SP) Strategic planning proposal and structure plan where the lot layout is not known				
Element Compliance Statement	The proposed development/use achieves the intent of the element by being fully compliant with all applicable acceptable solutions.				
Pathway Applied to Provide an Alternative Solution	N/A				
Acceptable Solutions - Assessment Statements *All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.* *The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in Appendices 2 and 3. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).*					
Solution Component Check Box Legend	☑ Relevant & met	☒ Relevant & not met	⃠ Not relevant		
A3.1 Public roads	**Applicable**:	Yes	**Compliant**:	Yes	
☑ ☐ ☐	The technical construction requirements of vertical clearance and weight capacity (Guidelines, Table 6) can and will be complied with (Refer also to Appendix C in this BMP).				
☑ ☐ ☐	All other applicable technical requirements of trafficable width, gradients and curves, are required to be in "accordance with the class of road as specified in the IPWEA Subdivision Guidelines, Liveable Neighbourhoods, Ausroad Standards and/or any applicable standard in the local government area" (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP). The assessment conducted for the bushfire management plan indicates that it is likely that the proposed development can and will comply with the requirements. However, the applicable class of road, the associated technical requirements and subsequent proposal compliance, will need to be confirmed with the relevant local government and/or Main Roads WA.				
☐ ☐ ⃠	A traversable verge is available adjacent to classified vegetation (Guidelines, E3.1), as recommended.				
Supporting Assessment Details: Future roads will be complaint with the technical requirements and considered at subsequent planning stages.					
A3.2a Multiple access routes	**Applicable**:	Yes	**Compliant**:	N/A	
☑ ☐ ☐	For each lot, two-way public road access is provided in two different directions to at least two different suitable destinations with an all-weather surface.				

☐ ☐ ⊘	The two-way access is available at an intersection no greater than 200m from the relevant boundary of each lot, via a no-through road.
☐ ☐ ⊘	The two-way access is not available at an intersection within 200m from the relevant boundary of each lot. However, the available no-through road satisfies the established exemption for the length limitation in every case. These requirements are: • Demonstration of no alternative access (refer to A3.3 below); • The no-through road travels towards a suitable destination; and • The balance of the no-through road that is greater than 200m from the relevant lot boundary is within a residential built-out area or is potentially subject to radiant heat levels from adjacent bushfire prone vegetation that correspond to the BAL-LOW rating (<12.5 kW/m^2).
Supporting Assessment Details: Future connection to Woodvale Drive will ensure compliance with Public Road requirements.	

A3.2b Emergency access way	**Applicable**:	No	**Compliant**:	N/A

☐ ☐ ⊘	The proposed or existing EAW provides a through connection to a public road.
☐ ☐ ⊘	The proposed or existing EAW is less than 500m in length and will be signposted and gated (remaining unlocked) to the specifications stated in the Guidelines and/or required by the relevant local government.
☐ ☐ ⊘	The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.2b. Refer also to Appendix C in this BMP), can and will be complied with.
Supporting Assessment Details:	

A3.3 Through-roads	**Applicable**:	No	**Compliant**:	N/A

☐ ☐ ⊘	A no-through public road is necessary as no alternative road layout exists due to site constraints.
☐ ☐ ⊘	The no-through public road length does not exceed the established maximum of 200m to an intersection providing two-way access (Guidelines, E3.3).
☐ ☐ ⊘	The no-through public road exceeds 200m but satisfies the exemption provisions of A3.2a as demonstrated in A3.2a above.
☐ ☐ ⊘	The public road technical construction requirements (Guidelines, Table 6 and E3.1. Refer also to Appendix C in this BMP), can and will be complied with as established in A3.1 above.
☐ ☐ ⊘	The turnaround area requirements (Guidelines, Figure 24) can and will be complied with.
Supporting Assessment Details:	

A3.4a Perimeter roads	Applicable:	Yes	Compliant:	Yes
☑ ☐ ☐	The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision) and therefore should have a perimeter road. This is planned to be installed.			
☐ ☐ ⊘	The proposed greenfield or infill development consists of 10 or more lots (including those that are part of a staged subdivision). However, it is not required on the established basis of: • The vegetation adjoining the proposed lots is classified Class G Grassland; • Lots are zoned rural living or equivalent; • It is demonstrated that it cannot be provided due to site constraints; or • All lots have existing frontage to a public road.			
☑ ☐ ☐	The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4a) can and will be complied with.			
Supporting Assessment Details: Perimeter roads are achievable and will be complied with at a later stage of Subdivision application.				
A3.4b Fire service access route	**Applicable:**	No	**Compliant:**	N/A
☐ ☐ ⊘	The FSAR can be installed as a through-route with no dead ends, linked to the internal road system every 500m and is no further than 500m from a public road.			
☐ ☐ ⊘	The technical construction requirements of widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.4b. Refer also to Appendix C in this BMP), can and will be complied with.			
☐ ☐ ⊘	The FSAR can and will be signposted. Where gates are required by the relevant local government, the specifications can be complied with.			
☐ ☐ ⊘	Turnaround areas (to accommodate type 3.4 fire appliances) can and will be installed every 500m on the FSAR.			
Supporting Assessment Details: None Required				
A3.5 Battle-axe access legs	**Applicable:**	No	**Compliant:**	N/A
☐ ☐ ⊘	A battle-axe leg cannot be avoided due to site constraints.			
☐ ☐ ⊘	The proposed development is in a reticulated area and the battle-axe access leg length from a public road is no greater than 50m. No technical requirements need to be met.			
☐ ☐ ⊘	The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.5. Refer also to Appendix C in this BMP), can and will be complied with.			
☐ ☐ ⊘	Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.			
Supporting Assessment Details: None Required				

A3.6 Private driveways	Applicable:	No	Compliant:	N/A
☐ ☐ ⊘	The private driveway to the most distant external part of the development site is within a lot serviced by reticulated water, is accessed via a public road with a speed limit of 70 km/hr or less and has a length is no greater than 70m (measured as a hose lay). No technical requirements need to be met.			
☐ ☐ ⊘	The technical construction requirements for widths, clearances, capacity, gradients and curves (Guidelines, Table 6 and E3.6. Refer also to Appendix C in this BMP), can and will be complied with.			
☐ ☐ ⊘	Passing bays can and will be installed every 200m with a minimum length of 20m and a minimum additional trafficable width of 2m.			
☐ ☐ ⊘	The turnaround area requirements (Guidelines, Figure 28, and within 30m of the habitable building) can and will be complied with.			
Supporting Assessment Details: None Required				

4.6 Assessment Statements for Element 4: Water

FIREFIGHTING WATER	
Element Intent	To ensure water is available to enable people, property and infrastructure to be defended from bushfire.
Proposed Development/Use – Relevant Planning Stage	(SP) Strategic planning proposal and structure plan where the lot layout is not known
Element Compliance Statement	The proposed development/use achieves the intent of the element by being fully compliant with all applicable acceptable solutions.
Pathway Applied to Provide an Alternative Solution	N/A

Acceptable Solutions - Assessment Statements

All details of acceptable solution requirements are established in the Guidelines for Planning in Bushfire Prone Areas, DPLH v1.4 (Guidelines) and apply the guidance established by the Position Statement: 'Planning in bushfire prone areas – Demonstrating Element 1: Location and Element 2: Siting and design' (WAPC Nov 2019) and the 'Bushfire Management Plan Guidance for the Dampier Peninsula' (WA Department of Planning, Lands and Heritage, 2021 Rev B) as relevant. These documents are available at https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas.

The technical construction requirements for access types and components, and for each firefighting water supply component, are also presented in Appendices 2 and 3. The local government will advise the proponent where different requirements are to apply and when any additional specifications such as those for signage and gates are to apply (these are included in the relevant appendix if requested by the local government).

Solution Component Check Box Legend ☑ Relevant & met ☒ Relevant & not met ⃠ Not relevant

A4.1 Identification of future firefighting water supply **Applicable**: No **Compliant**: N/A

☑ ☐ ☐	It can be demonstrated that reticulated or sufficient non-reticulated water for firefighting can be provided at the subdivision and/or development application stage in accordance with the specifications of the relevant water supply authority or the requirements of Schedule 2.

Supporting Assessment Details: A hydrant is located on Woodvale Drive in front of the existing lot as indicated on Figure [1-3] and at 200m intervals along Woodvale Drive.

Refer to information contained in Appendix D for the firefighting water supply specifications and technical requirements.

A4.2 Provision of water for firefighting purposes **Applicable**: No **Compliant**: N/A

☐ ☐ ⃠	A reticulated water supply is available to the proposed development. The existing hydrant connection(s) are provided in accordance with the specifications of the relevant water supply authority.
☐ ☐ ⃠	A reticulated water supply will be available to the proposed development. Hydrant connection(s) can and will be provided in accordance with the specifications of the relevant water supply authority.
☐ ☐ ⃠	A static water supply (tank) for firefighting purposes will be installed on each lot that is additional to any water supply that is required for drinking and other domestic purposes.
☐ ☐ ⃠	A strategic water supply (tank or tanks) for firefighting purposes will be installed within or adjacent to the proposed development that is additional to any water supply that is required for drinking and other

	domestic purposes. The required land will be ceded free of cost to the local government and the lot or road reserve where the tank is to be located will be identified on the plan of subdivision.
☐ ☐ ⊘	The strategic static water supply (tank or tanks) will be located no more than 10 minutes travel time from a subject site (at legal road speeds).
☐ ☐ ⊘	The technical requirements (location, number of tanks, volumes, design, construction materials, pipes and fittings), as established by the Guidelines (A4.2, E4 and Schedule 2) and/or the relevant local government, can and will be complied with.
Supporting Assessment Details:	

5 RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE PROTECTION MEASURES

5.1 Developer Responsibilities – Prior to Issue of Titles

DEVELOPER RESPONSIBILITIES – PRIOR TO ISSUE OF TITLES		
No.	Implementation Actions	Subdivision Clearance
1	*Condition that may be imposed (refer to Code F2 of Model Subdivision Conditions Schedule, WAPC June 2021 and Guidelines DPLH, 2021 v1.4, s5.3.2)* A notification, pursuant to Section 165 of the *Planning and Development Act 2005*, is to be placed on the certificate(s) of title of the proposed lot(s) with a Bushfire Attack Level (BAL) rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: "*This land is within a bushfire prone area as designated by an Order made by the Fire and Emergency Services Commissioner and is/may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land.*" (Western Australian Planning Commission).	☐

5.2 Landowner / Occupier Responsibilities – Ongoing Management

LANDOWNER/OCCUPIER – ONGOING MANAGEMENT	
No.	Management Actions
1	Comply with the City of Joondalup Bushfire Risk Management (Firebreaks and Hazard Reduction) notice issued under s33 of the Bush Fires Act 1954. Check the notice annually for any changes.
2	Ensure that builders engaged to construct dwellings/additions and/or other relevant structures on the lot, are aware of the existence of this approved Bushfire Management Plan (BMP). The plan identifies that the development site is within a designated bushfire prone area and states the indicative (or determined) BAL rating(s) that may (or will) be applied to buildings/structures. A BAL assessment report may be required to confirm determined ratings and will be required when ratings are indicative. BAL certificates will need to be issued to accompany building applications. The BMP may also establish, as an additional bushfire protection measure, that construction requirements to be applied will be those corresponding to a specified higher BAL rating. Compliance with the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), will require certain bushfire resistant construction requirements be applied to residential buildings in bushfire prone areas (i.e., Class 1, 2 and 3 and associated Class 10a buildings and decks). Other classes of buildings may also be required to comply with these construction when established by the relevant authority or if identified as an additional bushfire protection measure within the BMP. The deemed to satisfy solutions that will meet the relevant bushfire performance requirements are found in AS 3959 – Construction of Building in Bushfire Prone Areas (as amended) and the NASH Standard - Steel Framed Construction in Bushfire Areas (as amended).
3	Ensure all future buildings the landowner has responsibility for, are designed and constructed in full compliance with: • The bushfire resistant construction requirements of the Building Code of Australia (Volumes 1 and 2 of the National Construction Code), as established by the Building Regulations 2012 (WA Building Act 2011); and • Any additional bushfire protection measures this Bushfire Management Plan has established are to be implemented.

5.3 Local Government Responsibilities – Ongoing Management

LOCAL GOVERNMENT – ONGOING MANAGEMENT	
No.	Management Actions
1	Monitor landowner compliance with the annual City of Joondalup Bushfire Risk Management (Firebreaks and Hazard Reduction) Noticeand with any bushfire protection measures that are: • Established by this BMP; • Are required to be maintained by the landowner/occupier; and • Are relevant to local government operations.
2	To be aware of the potential consequences of any significant changes in the local government's management of land, of which they have vested control (including re-vegetation), that could have an adverse impact on the determined BAL ratings that apply to adjacent existing or future buildings and where: • The determined BAL ratings have been established by an existing BMP or a BAL Assessment; and • The BAL has been correctly determined with appropriate consideration of what might reasonably be expected to potentially change in the future with regards to the classification of the vegetation being altered and/or management of the relevant area of vegetation. Lot 36 includes an area of Bush Forever which is classified Grassland and Scrub vegetation. Any modification or revegetation to these areas may impact the BAL ratings for future development.

APPENDIX A: DETAILED BAL ASSESSMENT DATA AND SUPPORTING INFORMATION

A1: BAL Assessment Inputs Common to the Method 1 and Method 2 Procedures

A1.1: FIRE DANGER INDICES (FDI/FDI/GFDI)

When using Method 1 the relevant FDI value required to be applied for each state and region is established by AS 3959:2018, Table 2.1. Each FDI value applied in Tables 2.4 – 2.7 represents both the Forest Fire Danger Index (FFDI) and a deemed equivalent for the Grassland Fire Danger Index (GFDI), as per Table B2 in Appendix B. When using Method 2, the relevant FFDI and GFDI are applied.

The values may be able to be refined within a jurisdiction, where sufficient climatological data is available and in consultation with the relevant authority.

Relevant Jurisdiction:	WA	Region:	Whole State	Method 1	Applied FDI:	80
				Method 2	Applied FFDI:	N/A
					Applied GFDI:	N/A

A1.2: VEGETATION ASSESSMENT AND CLASSIFICATION

Vegetation Types and Classification

In accordance with AS 3959:2018 clauses 2.2.3 and C2.2.3.1, all vegetation types within 100 metres of the 'site' (defined as "the part of the allotment of land on which a building stands or is to be erected"), are identified and classified. Any vegetation more than 100 metres from the site that has influenced the classification of vegetation within 100 metres of the site, is identified and noted. The maximum excess distance is established by AS 3959: 2018 cl 2.2.3.2 and is an additional 100 metres.

Classification is also guided by the Visual Guide for Bushfire Risk Assessment in WA (WA Department of Planning February 2016) and any relevant FPA Australia practice notes.

Modified Vegetation

The vegetation types have been assessed as they will be in their natural mature states, rather than what might be observed on the day. Vegetation destroyed or damaged by a bushfire or other natural disaster has been assessed on its expected re-generated mature state. Modified areas of vegetation can be excluded from classification if they consist of low threat vegetation managed in a minimal fuel condition, satisfying AS 3959:2018 s2.2.3.2(f), and there is sufficient justification to reasonable expect that this modified state will exist in perpetuity.

The Influence of Ground Slope

Where significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

THE INFLUENCE OF VEGETATION GREATER THAN 100 METRES FROM THE SUBJECT SITE	
Vegetation area(s) within 100m of the site whose classification has been influenced by the existence of bushfire prone vegetation from 100m – 200m from the site:	None
Assessment Statement:	No vegetation types exist close enough, or to a sufficient extent, within the relevant area to influence classification of vegetation within 100 metres of the subject site.

VEGETATION AREA 1						
Classification	**A. FOREST**					
Types Identified	Open forest A-03					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	1-2m	Tree Height	6-8m	
Dominant & Sub-Dominant Layers (species as relevant)	Mixed Eucalyptus and Corymbia species					
Understorey:	Mixed shrubs, juvenile Eucalyptus trees and unmanaged weeds					
Additional Justification:	Not Required.					
Post Development Assumptions:	N/A					

PHOTO ID: 1

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VEGETATION AREA 2						
Classification	**B. WOODLAND**					
Types Identified	Open woodland G-06					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	10-30%	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers (species as relevant)	Tall *Eucalyptus gomphocephala* over scatter *Casuarina fraseriana*					
Understorey:	Managed exotic pastural grasses.					
Additional Justification:	Not Required.					
Post Development Assumptions:	N/A					

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VEGETATION AREA 3						
Classification	**D. SCRUB**					
Types Identified	Closed scrub D-13					
Exclusion Clause	N/A					
Effective Slope	Measured	d/slope 4 degrees	Applied Range (Method 1)	Downslope >0-5 degrees		
Foliage Cover (all layers)	>90%	Shrub/Heath Height	>2m	Tree Height	N/A	
Dominant & Sub-Dominant Layers (species as relevant)	Closed scrub following a low-lying wetland. Mixed sedges and water grasses.					
Additional Justification:	Not Required.					
Post Development Assumptions:	N/A					

PHOTO ID: 7

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VEGETATION AREA 4						
Classification	**G. GRASSLAND**					
Types Identified	Sown pasture G-26 Open herbfield G-27					
Exclusion Clause	N/A					
Effective Slope	Measured	d/slope 4 degrees	Applied Range (Method 1)	Downslope >0-5 degrees		
Foliage Cover (all layers)	10-30%	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers (species as relevant)	Mixed invasive grasses and herbs across a sandplain.					
Additional Justification:	Not Required.					
Post Development Assumptions:	N/A					

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VEGETATION AREA 5						
Classification	**G. GRASSLAND**					
Types Identified	Open herbfield G-27 Sown pasture G-26					
Exclusion Clause	N/A					
Effective Slope	Measured	flat 0 degrees	Applied Range (Method 1)	Upslope or flat 0 degrees		
Foliage Cover (all layers)	30-70%	Shrub/Heath Height	N/A	Tree Height	N/A	
Dominant & Sub-Dominant Layers (species as relevant)	Mixed invasive grasses and herbs across a sandplain.					
Additional Justification:	Not Required.					
Post Development Assumptions:	N/A					

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VEGETATION AREA 6	
Classification	**N/A**
Exclusion Clause	2.2.3.2 (e) Non-vegetated areas and (f) Low threat vegetation - minimal fuel condition.
Additional Justification:	Areas include managed verges and lawns all with grasses no taller than 10cm.
Post Development Assumptions:	Verges to remain managed in perpetuity.

PHOTO ID: 15

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A1.3: EFFECTIVE SLOPE

Measuring

Effective slope refers to the slope "under the classified vegetation which most significantly influences bushfire behaviour (AS 3959:2018, clause B4, CB4). It is not the average slope.

It is described as upslope, flat or downslope when viewed from the exposed element (e.g., building) looking towards the vegetation – and measured in degrees. Ground slope has a direct and significant influence on a bushfire's rate of spread and intensity, which increases when travelling up a slope.

The slope under the vegetation in closest proximity to the exposed element(s), over the distance that will most likely carry the entire depth of the flaming front, will be a significant consideration in the determination of the effective slope. This distance is determined as a function of the potential quasi-steady rate of spread and expected residence time (i.e., the flaming combustion period at a single point on the ground), of a bushfire in the specific vegetation type/landscape scenario.

Slope Variation Within Areas of Vegetation

Where a significant variation in effective slope exists under a consistent vegetation type, these will be delineated as separate vegetation areas to account for the difference in potential bushfire behaviour, in accordance with AS 3959:2018 clauses 2.2.5 and C2.2.5.

Slope Variation Due to Multiple Development Sites

When the effective slope, under a given area of bushfire prone vegetation, will vary significantly relative to multiple proposed development sites (exposed elements), then the effective slopes corresponding to each of the different locations, are separately identified.

The relevant (worst case) effective slope is determined in the direction corresponding to the potential directions of fire spread towards the subject building(s).

Differences in Application of Effective Slope - AS 3959:2018 Method 1 versus Method 2 Procedures

The Method 1 procedure provides five different slope ranges from flat (including all upslopes) to 20 degrees downslope to define the effective slope and bushfire behaviour model calculations apply the highest value in each range (i.e., 0^0, 5^0, 10^0, 15^0 or 20^0).

The Method 2 procedure requires an actual slope (up or down in degrees) to be determined. AS 3959:2018, clause B1 limits the effective slope that can be applied to 30 degrees downslope and 15 degrees upslope. Where any upslope is greater than 15 degrees, then 15 degrees is to be used.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

The effective slopes determined from the site assessment are recorded in Table 3.1 of this Bushfire Management Plan. When their derivation requires additional explanation and justification, this is provided below.

A1.4: SEPARATION DISTANCE

Measuring

The separation distance is the distance in the horizontal plane between the receiver (building/structure or area of land being considered) and the edge of the classified vegetation (AS 3959:2018, clause 2.2.4)

The relevant parts of a building/structure from which the measurement is taken is the nearest part of an external wall or where a wall does not exist, the supporting posts or columns. Certain parts of buildings are excluded including eaves and roof overhangs.

The edge of the vegetation, for forests and woodlands, will be determined by the unmanaged understorey rather than either the canopy (drip line) or the trunk (AS 3959:2018, clause C2.2.5).

Measured Separation Distance as a Calculation Input

If a separation distance can be measured because the location of the building/structure relative to the edge of the relevant classified vegetation is known, this figure can be entered into the BAL calculation. The result is a determined BAL rating.

Assumed Separation Distance as a Calculation Input

When the building/structure location within the lot is not known, an assumed building location may be applied that would establish the closest positioning of the building/structure relative to the relevant area of vegetation.

The assumed location would be based on a factor that puts a restriction on a building location such as:

- An established setback from the boundary of a lot, such as a residential design code setback or a restrictive covenant; or
- Within an established building envelope.

The resultant BAL rating would be indicative and require later confirmation (via a Compliance Report) of the building/structure actual location relative to the vegetation to establish the determined BAL rating.

Separation Distance as a Calculation Output

With the necessary site specific assessment inputs and using the AS 3959:2018 bushfire modelling equations, the range of separation distances that will correspond to each BAL rating (each of which represents a range of radiant heat flux), can be calculated. This has application for bushfire planning scenarios such as:

- When the separation distance cannot be measured because the exact location of the exposed element (i.e., the building, structure or area), relative to classified vegetation, is yet to be determined.

  In this scenario, the required information is the identification of building locations onsite that will correspond to each BAL rating. That is, indicative BAL ratings can be derived for a variety of potential building/structure locations; or

- The separation distance is known for a given building, structure or area (and a determined BAL rating can be derived), but additional information is required regarding the exposure levels (to the transfer of radiant heat from a bushfire), of buildings or persons, that will exist at different points within the subject site.

The calculated range of separation distances corresponding to each BAL rating can be presented in a table and/or illustrated as a BAL Contour Map – whichever is determined to best fit the purpose of the assessment.

For additional information refer to the information boxes in Section 3 'Bushfire Attack Levels (BAL) - Understanding the Results and Section 3.2. 'Interpretation of the BAL Contour Map'.

SITE ASSESSMENT DETAILS - EXPLANATION & JUSTIFICATION

. Measured and assumed separation distances determined from the site assessment are recorded in Section 3, Table 3.1. When their derivation requires additional explanation and justification, including when the relevant R-Code or other regulated building setbacks are being applied, this is provided below.

APPENDIX B: ONSITE VEGETATION MANAGEMENT - THE APZ

THE ASSET PROTECTION ZONE (APZ) - DESCRIPTION

This is an area surrounding a habitable building containing either no fire fuels and/or low threat fire fuels that are managed in a minimal fuel condition. The primary objectives include:

- To ensure the building is sufficiently separated from the bushfire hazard to limit the impact of its direct attack mechanisms. That is, the dimensions of the APZ will, for most site scenarios, remove the potential for direct flame contact on the building, reduce the level of radiant heat to which the building is exposed and ensure some reduction in the level of ember attack (with the level of reduction being dependent on the vegetation types of present);
- To ensure any vegetation retained within the APZ presents low threat levels and prevents surface fire spreading to the building;
- To ensure other combustible materials that can result in consequential fire (typically ignited by embers) within both the APZ and parts of the building, are eliminated, minimised and/or appropriately located or protected. (Note: The explanatory notes in the Guidelines provide some guidance for achieving this objective and other sources are available. Research shows that consequential fire, ignited by embers, is the primary cause of building loss in past bushfire events); and
- To provide a defendable space for firefighting activities.

B1: The Dimensions and Location of the APZ to be Established and Maintained

UNDERSTANDING THE APZ PLANNING ASSESSMENT VERSUS ITS IMPLEMENTATION REQUIREMENTS

THE 'PLANNING BAL-29' APZ

It is important to understand is that the 'Planning BAL-29' APZ is not necessarily the size of the APZ that must be physically established and maintained by a landowner. It is a screening tool for making planning approval decisions.

The assessment against the Bushfire Protection Criteria is conducted for planning approval purposes. To satisfy acceptable solution 'A2.1: Asset Protection Zone', it must be demonstrated that certain minimum separation distances between the relevant building/structure and different classes of bushfire prone vegetation either exist or can be created and will remain in perpetuity.

The required minimum separation distances are those that will ensure the potential radiant heat impact on relevant existing or future buildings does not exceed 29 kW/m^2. The area of land contained within these separation distances is described as an Asset Protection Zone (APZ) and is to be comprised of non-vegetated land or low threat vegetation managed in a minimal fuel condition.

The applicable minimum separation distances will vary dependent on the vegetation types, the slope of the land they are growing on and other relevant factors specific to the site and its use.

The resulting 'Planning BAL-29' APZ dimensions may extend outside subject lot boundaries.

It is the purpose of the bushfire consultant's 'Supporting Assessment Detail', that is presented in the assessment against the acceptable solution A2.1, that will identify and justify how any offsite land within the 'Planning BAL-29 APZ (which the subject landowner has no authority or responsibility to manage), will meet the requirements of being either non-vegetated land or low threat vegetation managed in a minimal fuel condition and likely to remain in this state in perpetuity. Or otherwise, explain how this condition cannot be met.

It is the 'Planning BAL-29' APZ dimensions that will be stated in relevant tables and shown on maps as necessary in this BMP. The exceptions are the tables that are included within this appendix - when relevant to the subject lot(s) - which will present 'BAL Rating' and 'Landowner' APZ dimensions.

THE 'BAL RATING' APZ

The 'BAL Rating' APZ will ensure that the potential radiant heat exposure of the building/structure will be limited to the level that the applied construction requirements, (i.e., those corresponding to the building/structure's determined BAL rating), are designed to resist.

The minimum dimensions of the 'BAL Rating' APZ to be established and maintained will be those that correspond to the determined BAL rating for the specific building/structure. They will account for the specific conditions on and surrounding the subject lot.

The required dimensions of the 'BAL Rating' APZ establish the size of the APZ that must physically exist either entirely within a subject lot or in combination with an area of adjoining land.

If in combination with adjoining (offsite) land, it must be justified how the offsite land can most reasonably be expected to either remain unvegetated or be able to meet and maintain the APZ Standards in perpetuity, without any actions by the owner of the subject lot.

The applicable determined BAL rating will have been stated in the relevant assessment section of this BMP when it can be assessed as a 'determined' rather than 'indicative' rating. Otherwise, it will be shown on the BAL Certificate that is submitted as part of a building application.

THE 'LANDOWNER' APZ

Dimensions: The 'Landowner' APZ is to be established and maintained by the owner of the subject lot. The minimum dimensions are the 'BAL Rating' APZ dimensions except that they will be limited to the distance that they can be established within the subject lot. (Note: Any removal of native vegetation my require the approval of the relevant authority.

The remaining required separation distance outside the lot has been assessed by the bushfire consultant to be most likely to remain in a low threat state in perpetuity without any actions to be taken by the owner of the subject lot.

These minimum 'within the lot' APZ dimensions will only be greater when the relevant local government's annual firebreak / hazard reduction notice (issued under s33 of the Bushfires Act 1954), specifies the APZ dimensions to be applied within the lot and they are greater. Consequently, the 'Landowner' APZ dimensions can be a combination of the 'BAL Rating' Dimensions and the Local Government requirements. Check their annual notice for revisions to these requirements.

The dimensions of the 'Landowner' APZ establish the size of the APZ that must be established and maintained by the landowner within the subject lot.

Location: The 'Landowner' APZ for which the landowner has the responsibility to establish and maintain, is that which will exist entirely within the boundaries of the relevant lot, unless an approved formal and enforceable agreement allows them to manage a specified area of land external to the subject lot.

In most cases the landowner will only have authority and responsibility to establish and manage the APZ within the subject lot.

Otherwise, when there is a remaining part of the 'BAL Rating' APZ existing outside the subject lot, then these areas of land will, in most situations, include non-vegetated areas (e.g., roads / parking / drainage / water body), formally managed areas of vegetation (e.g., public open space / recreation areas / services installed in a common section of land) or an APZ on a neighbouring lot that is required to be established and maintained by the owner of that adjoining lot.

> *For vulnerable land uses, the 'BAL Rating' APZ and 'Landowner' APZ will also refer to the dimensions corresponding to radiant heat impact levels of 10 kW/m^2 and 2 kW/m^2 (calculated using 1200K flame temperature).*
>
> *For development applications only, the 'Landowner' APZ dimensions are also shown on the Property Bushfire Management Statement in Section 6.3.1 of this BMP when it is a required component of the Bushfire Management Plan.*

Table B1.1: The applicable 'Landowner' APZ Dimensions when indicative BAL ratings have been established by the BMP.

THE 'LANDOWNER' APZ DIMENSIONS TO BE ESTABLISHED AND MAINTAINED							
Relevant Buildings(s)	Classified Vegetation Refer to Fig 3.1	Minimum Required Separation Distances (m) - Building to Vegetation					
		The 'BAL Rating' APZ				As Directed by the Applicable 2022 Local Government Firebreak / Hazard Reduction Notice	The 'Landowner' APZ (limited to the subject lot boundary unless otherwise justified)
		Corresponding to the Stated 'Indicative' BAL					
		BAL-29	BAL-19	BAL-12.5	BAL-LOW		
Proposed Lots on Future Subdivision	Area 1	21	31	42	100	N/A	Will be dependent on the subsequent 'Determined' BAL rating. It is then to be calculated as the greater of the 'BAL Rating' distance or the 'Firebreak Notice' distance, and no greater than the distance to the lot boundary.
	Area 2	14	20	29	100	N/A	
	Area 3	15	22	31	100	N/A	
	Area 4	9	14	20	50	N/A	
	Area 5	8	12	17	50	N/A	
	Area 6	N/A	N/A	N/A	N/A	N/A	
Comments: Any future subdivided lots will at minimum need to comply with the BAL-29 setback distances.							

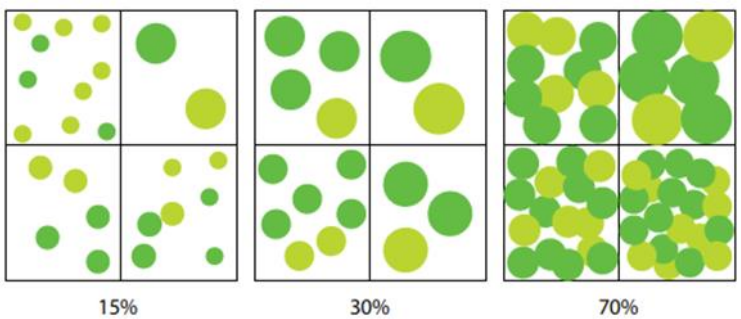
B2: The Standards for the APZ as Established by the Guidelines (DPLH, v1.4)

Within the Guidelines (source: https://www.wa.gov.au/government/document-collections/state-planning-policy-37-planning-bushfire-prone-areas), the management Standards are established by:

- Schedule 1: Standards for Asset Protection Zones (see extract below) established by the Guidelines; and
- The associated explanatory notes (Guidelines E2) that address (a) managing an asset protection zone (APZ) to a low threat state (b) landscaping and design of an asset protection zone and (c) plant flammability.

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Fences within the APZ	• Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	• Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	• Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. **Figure 19:** Tree canopy cover – ranging from 15 to 70 per cent at maturity  15% 30% 70%

Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	• Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	• Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.
Grass	• Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	• Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	• Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

** Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes*

B3: The Standards for the APZ as Established by the Local Government

Refer to the firebreak / hazard reduction notice issued annually (under s33 of the Bushfires Act 1954) by the relevant local government. It may state Standards that vary from those established by the Guidelines and that have been endorsed by the WAPC and DFES as per Section 4.5.3 of the Guidelines.

A copy of the applicable notice is not included here as they are subject to being reviewed and modified prior to issuing each year. Refer to ratepayers notices and/or the local government's website for the current version.

B4: Maintaining Low Threat and Non-Vegetated Areas Excluded from Classification

AS 3959 establishes the methodology for determining a bushfire attack level (BAL). The methodology includes the classification of the subject site's surrounding vegetation according to their 'type' and the application of the corresponding bushfire behaviour models to determine the BAL. Certain vegetation can be considered as low threat and excluded from classification. Where this has occurred in assessing the site, the extract from AS3959:2018 below state the requirements (including the size of the vegetation area if relevant to the assessment) for maintenance of those areas of land.

2.2.3.2 *Exclusions—Low threat vegetation and non-vegetated areas*

The following vegetation shall be excluded from a BAL assessment:

(a) Vegetation of any type that is more than 100 m from the site.

(b) Single areas of vegetation less than 1 ha in area and not within 100 m of other areas of vegetation being classified vegetation.

(c) Multiple areas of vegetation less than 0.25 ha in area and not within 20 m of the site, or each other or of other areas of vegetation being classified vegetation.

(d) Strips of vegetation less than 20 m in width (measured perpendicular to the elevation exposed to the strip of vegetation) regardless of length and not within 20 m of the site or each other, or other areas of vegetation being classified vegetation.

(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.

(f) Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load. This includes grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks.

NOTES:

1 Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bushfire attack (recognizable as short-cropped grass for example, to a nominal height of 100 mm).

2 A windbreak is considered a single row of trees used as a screen or to reduce the effect of wind on the leeward side of the trees.

APPENDIX C: TECHNICAL REQUIREMENTS FOR VEHICULAR ACCESS

The design/layout requirements for access are established by the acceptable solutions of the Guidelines (DPLH, 2021 v1.4) Element 3 and vary dependent on the access component, the land use and the presence of 'vulnerable' persons. Consequently, the best reference source are the Guidelines. The technical requirements that are fixed for all components and uses are presented in this appendix.

GUIDELINES TABLE 6, EXPLANATORY NOTES E3.3 & E3.6 AND RELEVANT ACCEPTABLE SOLUTIONS

Technical Component	Vehicular Access Types / Components			
	Public Roads	Emergency Access Way [1]	Fire Service Access Route [1]	Battle-axe and Private Driveways [2]
Minimum trafficable surface (m)	In accordance with A3.1	6	6	4
Minimum Horizontal clearance (m)	N/A	6	6	6
Minimum Vertical clearance (m)	4.5			
Minimum weight capacity (t)	15			
Maximum Grade Unsealed Road [3]	As outlined in the IPWEA Subdivision Guidelines	1:10 (10%)		
Maximum Grade Sealed Road [3]		1:7 (14.3%)		
Maximum Average Grade Sealed Road		1:10 (10%)		
Minimum Inner Radius of Road Curves (m)		8.5		

APPENDIX D: TECHNICAL REQUIREMENTS FOR FIREFIGHTING WATER SUPPLY

D1: Reticulated Areas – Hydrant Supply

The Guidelines state "where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority."

The main scheme water suppliers / authorities in WA are The Water Corporation, AqWest – Bunbury Water Corporation and Busselton Water Corporation. Various local authority exists in other non-scheme and regional areas. However, most existing fire hydrants are connected to Water Corporation water mains.

Consequently, the hydrant location specifications from The Water Corporation's 'No 63 Water Reticulation Standard' (Ver 3 Rev 15) are provided in the extract below with the key distances relevant to bushfire planning assessments being highlighted. This Standard is deemed to be the baseline criteria for developments and should be applied unless different local water supply authority conditions apply. Other applicable specification will be found in the Standard.

Note: The maximum distance from a hydrant to the rear of a lot/building is generally interpreted as not applicable to large lot sizes where the maximum distance becomes an impractical limitation i.e., typically rural residential areas.

Design Standard DS 63
Water Reticulation Standard

2.2.1.5 Appurtenances

c. Hydrants

Hydrants shall be screw-down hydrant with built-in isolation valve and installed only on DN100 or larger pipes. Hydrants shall be located:

- so that the maximum distance between a hydrant and the rear of a building envelope, (or in the absence of a building envelope the rear of the lot) shall be 120m;
- so that spacing (as measured by hose-run) between hydrants in non-residential or mixed use areas shall be maximized and no greater than 100m;
- so that spacing (as measured by hose-run) between hydrants in residential areas with lots per dwelling <10,000m² shall be maximized and no greater than 200m;
- so that spacing between hydrants (as measured by hose-run) in rural residential areas where minimum lots per dwelling is >10,000 m² (1ha) shall be maximized and no greater than 400m;
- centrally along the frontage of a lot to avoid being under driveways, unless the lot features a frontage 6m or less, in which case it shall be placed to the side opposite the driveway;
- at lots that have the widest frontage in the local area;
- where appropriate at the truncation of road junctions or intersections so that they can serve more than one street and can be readily located;
- on both sides of the major roads at staggered intervals where there are mains on both sides of the road;
- at major intersections on dual multi-lane roads, where two hydrants are to be sited on diagonally opposite corners;
- hydrants should be located at least 20m from traffic calming devices i.e., median slow points or chokers, chicanes, mini traffic circles, and intersection 'pop-outs' to ensure traffic is not impeded;
- in a position not less than 10m from any high voltage main electrical distribution equipment such as transformers and distribution boards, liquefied petroleum gas or other combustible storage;
- directly on top of the main using a tee unless proved to be impractical.

Uncontrolled if Printed
Ver 3 Rev15

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Bushfire management plan/Statement addressing the Bushfire Protection Criteria coversheet

Site address: Lot 36 (95) Woodvale Drvie Woodvale

Site visit: Yes ☑ No ☐

Date of site visit (if applicable): Day 22 Month November Year 2022

Report author or reviewer: Kathy Nastov

WA BPAD accreditation level (please circle):

Not accredited ☐ Level 1 BAL assessor ☐ Level 2 practitioner ☐ Level 3 practitioner ☑

If accredited please provide the following.

BPAD accreditation number: 27794 Accreditation expiry: Month August Year 2023

Bushfire management plan version number: v2.0

Bushfire management plan date: Day 17 Month March Year 2023

Client/business name: Burgess Design Group

	Yes	No
Has the BAL been calculated by a method other than method 1 as outlined in AS3959 (tick no if AS3959 method 1 has been used to calculate the BAL)?		✔
Have any of the bushfire protection criteria elements been addressed through the use of a performance principle (tick no if only acceptable solutions have been used to address all of the bushfire protection criteria elements)?		✔

Is the proposal any of the following (see SPP 3.7 for definitions)?	Yes	No
Unavoidable development (in BAL-40 or BAL-FZ)		✔
Strategic planning proposal (including rezoning applications)	✔	
High risk land-use		✔
Vulnerable land-use		✔

None of the above ☐

Note: Only if one (or more) of the above answers in the tables is yes should the decision maker (e.g. local government or the WAPC) refer the proposal to DFES for comment.

Why has it been given one of the above listed classifications (E.g. Considered vulnerable land-use as the development is for accommodation of the elderly, etc.)?

LP Scheme Amendment

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer 

Date 17 March 2023