GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9960/1

File Number: DWERVT11431

Duration of Permit: From 13 April 2023 to 13 April 2025

PERMIT HOLDER

City of Wanneroo

LAND ON WHICH CLEARING IS TO BE DONE

Two Rocks Road Reserve (PIN 12225492), Yanchep and Two Rocks

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.9 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 and 2 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 13 April 2025.

2. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

3. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

4. Directional clearing

The permit holder must conduct clearing activities in a slow, progressive manner towards adjacent *native vegetation* to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity.

5. Wind erosion management

The permit holder must commence unexploded ordinance search no later than two months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

6. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the direction of clearing; (e) the date unexploded ordinance search commenced; (f) the size of the area cleared (in hectares); (g) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 2; and (h) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 3.

7. Reporting

The permit holder must provide to the *CEO* the records required under condition 9 of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of *Phytophthora* species on native vegetation.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

20 March 2023

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the maps below (Figures 1 and 2).

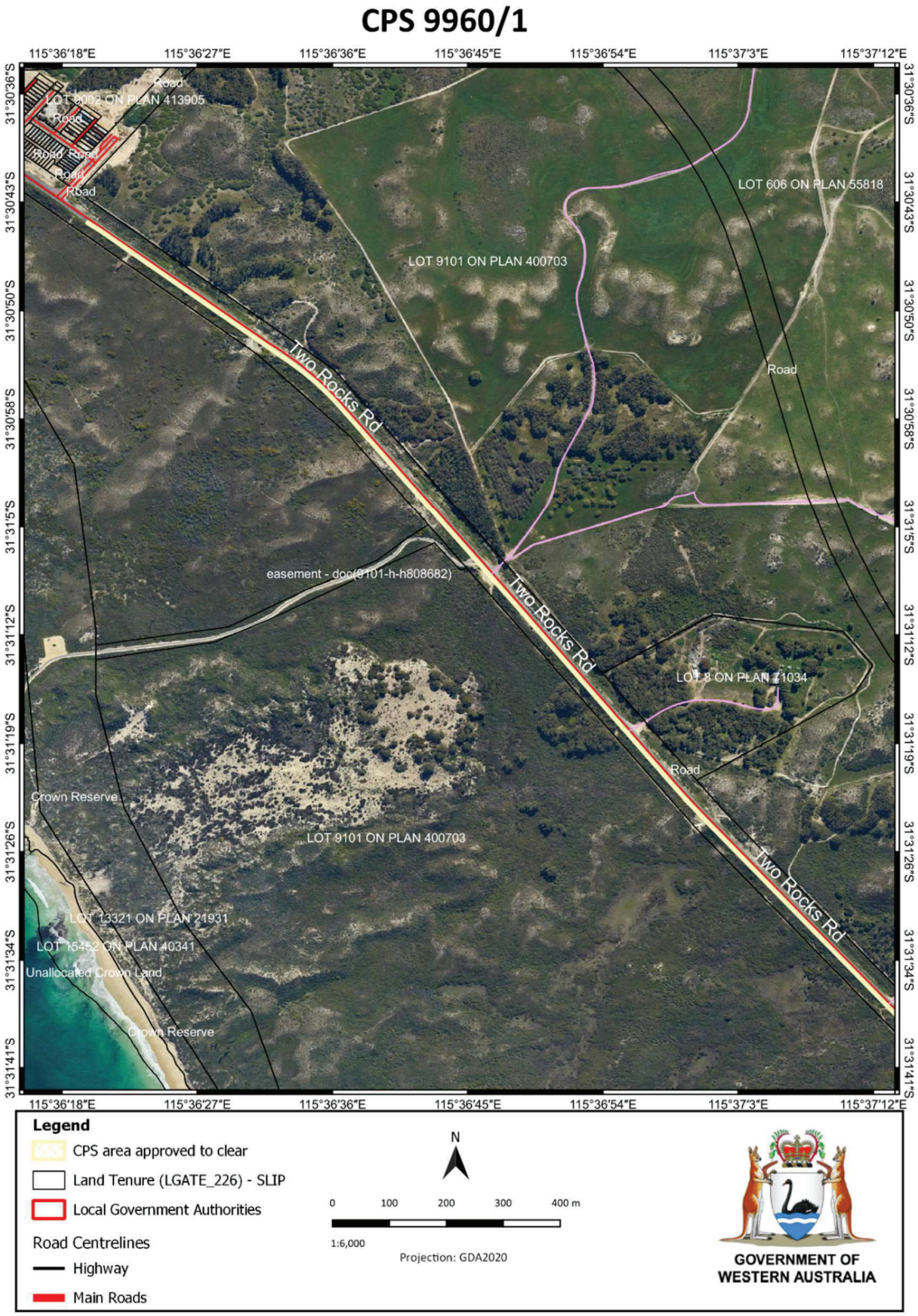

Figure 1: Map of the boundary of the area within which clearing may occur.

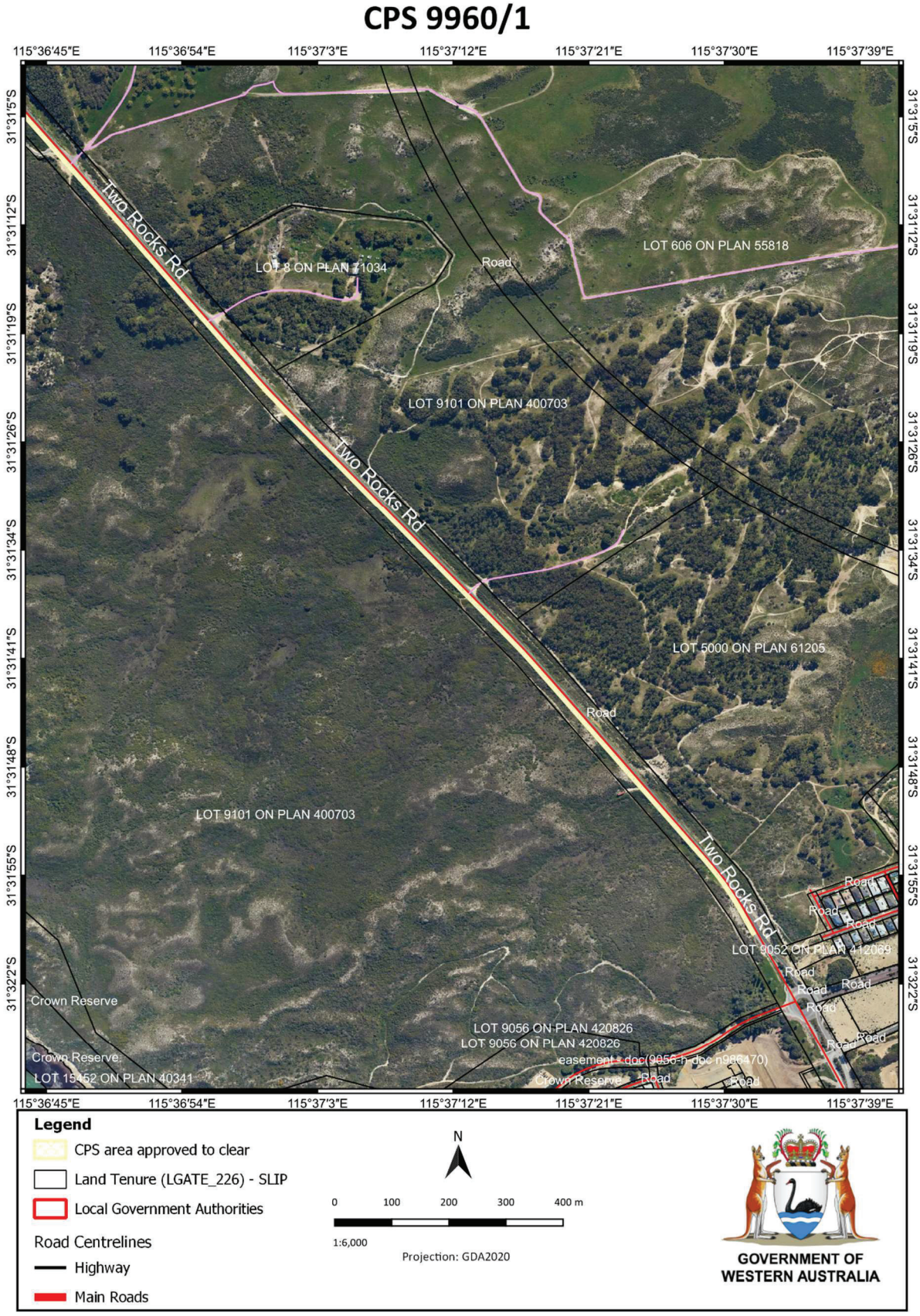

Figure 2: Map of the boundary of the area within which clearing may occur.

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9960/1
Permit type:	Area permit
Applicant name:	City of Wanneroo
Application received:	17 November 2022
Application area:	0.9 hectares of native vegetation
Purpose of clearing:	Facilitate the completion of an Unexploded Ordinance (UXO) remediation search and the installation of street lighting
Method of clearing:	Mechanical removal
Property:	Two Rocks Road Reserve (PIN 12225492)
Location (LGA area/s):	City of Wanneroo
Localities (suburb/s):	Yanchep and Two Rocks

1.2. Description of clearing activities

The City of Wanneroo is proposing to undertake the clearing of remnant vegetation on the western verge of Two Rocks Road, from Capricorn Esplanade to Reef Break Drive, in Yanchep and Two Rocks. The proposed clearing will facilitate the completion of an Unexploded Ordnance (UXO) remediation search and the installation of street lighting along Two Rocks Road. The vegetation proposed to be cleared is contained within a single contiguous area approximately three kilometres long and four meters wide (See Figure 1 and 2, Section 1.5). Clearing will be undertaken by mechanical means and removal of remaining vegetation by an excavator.

1.3. Decision on application

Decision:	Granted
Decision date:	20 March 2023
Decision area:	0.9 hectares of native vegetation, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E), the findings of a flora and vegetation survey and a site inspection (City of Wanneroo, 2022a), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the state black spot program development and management guidelines. The installation of street lighting is anticipated to improve road user safety.

The vegetation within the application area is in a good to completely degraded condition. The application area is dominated by areas of introduced species, with some common native plant species dispersed throughout. The assessment identified that the proposed clearing might result in the potential introduction and spread of weeds and dieback into adjacent native vegetation, which could impact the quality of that vegetation and its habitat values. Given the location on the coast and in sandy soils, the potential for land degradation in the form of wind erosion is high.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures, the Delegated Officer determined that the impacts of the proposed clearing could be minimised and managed to not lead to unacceptable impacts on the environment.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- Avoid, minimise to reduce the impacts and extent of clearing
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback
- Works to commence within two months to minimise wind erosion
- Undertake slow, progressive one direction clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity

1.5. Site maps

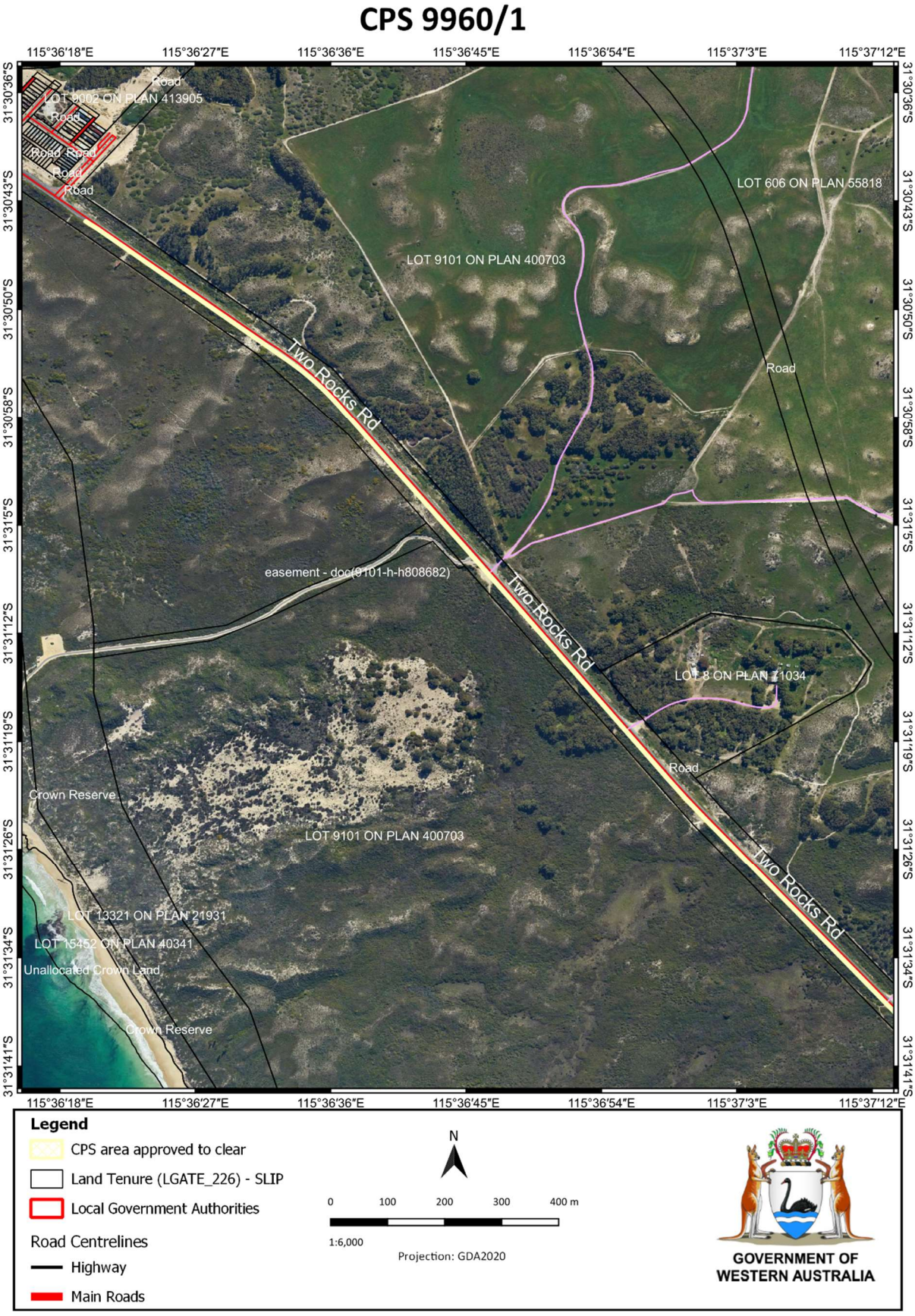

Figure 1: Map of the application area CPS 9960/1. The cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

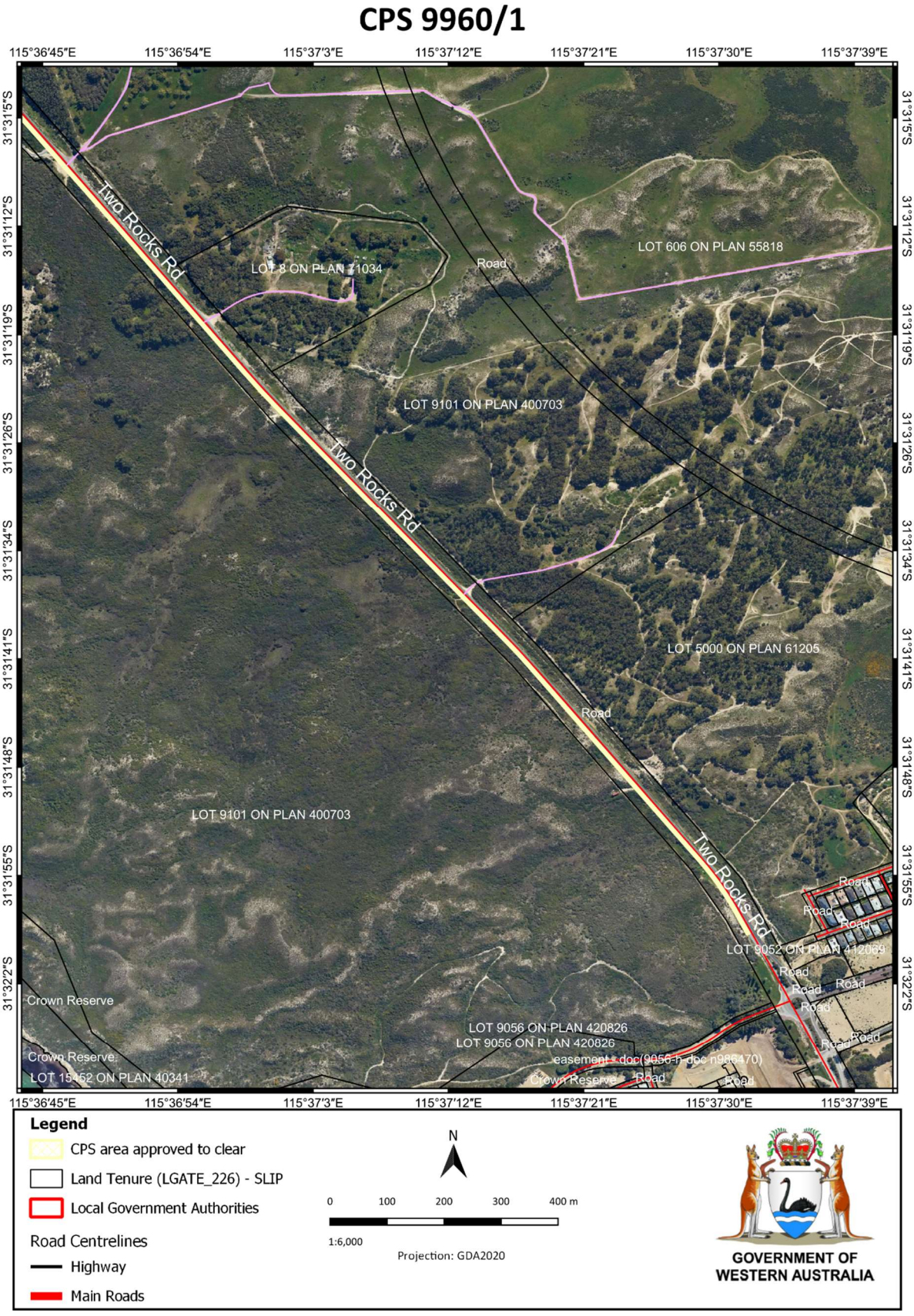

Figure 2: Map of the application area CPS 9960/1. The cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The following evidence was submitted by the applicant to demonstrate that avoidance, and mitigation measures have been applied to the proposed clearing area:

- A narrow-designed footprint with a maximum four metres from the existing road edge line marking and approximately 2.99 kilometres long
- limited clearing will be applied for the search of possible UXO, remediation areas and contractor working space
- clearing was chosen in an area that consists of mostly degraded areas previously cleared of vegetation or infested with weeds
- the proposed clearing is within an area which is predominantly degraded due to the proximity to the road and the edge effect
- Trenching and backfilling work to maximum of 600/800mm deep and 450/600mm wide for installation of electrical cables
- Installation of 12.5-meter poles with twin three-meter outreach arms and 170W LED single luminaires. Typically, holes would be dug via mechanical anger and then poles will be installed in place. This may change subject to ground conditions, for example pad footing may be used for soft ground (City of Wanneroo, 2022a).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation) and land and water resources (land degradation). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (Flora and vegetation) – Clearing Principles (a) and (c)

Assessment

Over most of the application area, the proposed clearing is narrow, with the maximum footprint being four metres from the existing road edge line marking. Therefore, the vegetation proposed to be cleared is mostly road verge vegetation that has been subject to existing edge effects. The Environmental impact assessment recorded the vegetation in good to completely degraded condition (Keighery, 1994) (City of Wanneroo, 2022a).

According to available databases, 23 conservation significant flora species have been recorded within the local area (10 kilometres from the application area). Of these, nine have been recorded within similar soil and vegetation types with the application area.

A total of 40 taxa were recorded from the application area, of which 16 (40 per cent) were native. The native vegetation is representative of the Quindalup complex. The native flora recorded within the application area do not represent any known threatened or priority flora. The vegetation within the application area is not representative of any known Threatened or Priority Ecological Community (TEC/PEC). Additionally, no threatened or priority flora species or TEC/PECs have previously been recorded within the application area.

The City of Wanneroo (2020a) recorded 24 non-native (weed) species over, or immediately adjacent to, the application area including grasses, Cape dandelion, clovers, and daisies. Adjacent native vegetation is susceptible to weed invasion and dieback disease *(Phytophthora* spp.) which the clearing process may exacerbate, thereby reducing habitat quality. Given the survey identified weed species within the application area (City of Wanneroo, 2022a), the proposed clearing may cause degradation of adjacent and nearby remnant native vegetation, by facilitating the spread of weeds and dieback.

Conclusion:

Based on the above assessment, the proposed clearing will not result in the loss of any threatened or priority flora, TEC or PEC, and the application area does not represent an area of high biodiversity. However, due to the high incidence of weeds within the application area, the proposed clearing may exacerbate that impact and degrade adjacent native vegetation. Weed and dieback management practices will mitigate this risk.

Conditions:

To address potential impacts to adjacent native vegetation from the proposed clearing, the permit holder must take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback.

3.2.2 Biological values fauna– Clearing Principle (b)

According to available databases, 37 conservation significant fauna species have been recorded within the local area comprising one Priority 1, one Priority 2, three Priority 3, four priority 4, 10 specially protected Migratory species, six Vulnerable species, four Endangered species, one Critically endangered species, one specially protected species (OS) and one specially protected species (conservation dependent; CD). There were no fauna habitats identified within the application area (City of Wanneroo, 2022a).

Twenty-five of these fauna are associated with marine, estuarine or freshwater habitats that do not occur within the application area (Appendix A.4). Due to the proximity of the Indian Ocean, many marine species were identified in database records, and these have not been considered further.

In determining the likelihood of conservation significant fauna occurring within the application area, consideration was given to the results of the site inspection (City of Wanneroo, 2022a), preferred habitat types and typical home ranges, proximity of records to the application area, and the type and condition of the vegetation within the application area. Seabirds, shorebirds, and migratory wading species could utilise the application area, but none are likely to utilise the application area itself. A summary of fauna recorded within the local area and with the potential to occur within the application area is presented in Appendix A.

Based on the similarities between the habitat requirements and vegetation types within the application area, the application area may provide a suitable habitat for the *Isoodon fusciventer* (quenda), *Neelaps calonotos* (black-striped snake, black-striped burrowing snake), *Synemon gratiosa* (Graceful sunmoth), and the Black Cockatoos species (Appendix A).

Quenda (P3)

In their natural habitat, Quenda live in dense understories in swampland area, banksia and jarrah woodlands. However, Quendas have adapted to urban and suburban habitats in recent years (Department of Biodiversity, Conservation and Attractions (DBCA), 2018). With the closest quenda on record being 20 metres from the application area, it is likely that Quenda can be found along the application area during the dusk and dawn. Given the extent of

the clearing proposed, and the amount of remnant native vegetation immediately adjacent, the application area is not considered significant habitat for Quenda.

Black-striped burrowing snake (P3)

The Black-striped burrowing snake has been recorded in dunes and in open woodlands and shrublands with sandy soils, similar to the habitat and soil conditions as the application area. The closest occurrence of this species was recorded 2.1 kilometres south from the application area.

The species is nocturnal, staying in loose sand during the day and prey upon small animals such as lizards and insects at night. This species is rarely found in fragmented, cleared areas susceptible to weed infestation, such as those within the proposed clearing areas. This is because *Neelaps calonotus* feeds exclusively on small fossorial skinks, and weeds are known to have an adverse effect on the composition of microhabitats required by fossorial species (City of Wanneroo, 2022a).

Whilst the Black-striped burrowing snake may traverse the application area, the habitat being cleared is not significant habitat for the continuation of this species.

Graceful sun moth (P4)

The Graceful sun moth has been recorded 1.6 kilometres from the application area in similar soil and vegetation types as the application area. The species feeds on nectar and it is likely that the species could be found intermittently along the application area feeding on acacia trees. The Sun moths only breed on two known species *Lomandra maritima* and *Lomandra hermaphrodita* (mat rushes) (Commonwealth of Australia, 2013), both of which are not found within the application area (City of Wanneroo, 2022a). Whilst the Graceful sun moth may forage within the application area, the habitat being cleared is not significant habitat for the continuation of this species.

Black Cockatoos

The application area is mapped within the known distribution zones of the Endangered *Zanda latirostris (*Carnaby's cockatoo*).* There are 12 known black cockatoo roosts within a 12-kilometre buffer of the application area, with the closest located 1.86 kilometres to the southeast of the application area.

Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable DBH to develop a nest hollow (Commonwealth of Australia, 2022). Within the application area there was no suitable breeding habitat for black cockatoos (City of Wanneroo, 2022a; City of Wanneroo, 2022c).

Black cockatoos preferred foraging habitat that includes jarrah and marri woodlands and forests, and proteaceous woodlands and heath dominated by plant species such as *Banksia* spp., *Hakea* spp. and *Grevillea* spp. (Commonwealth of Australia, 2022). Within the application area there were no foraging species found within the application area for black cockatoos (City of Wanneroo, 2022a; City of Wanneroo, 2022c).

The application area is not likely to comprise significant breeding or foraging habitat for the black cockatoo species. Black cockatoos could utilise the application area, but none are likely to utilise the application area itself and would be incidental.

Conclusion:
Given the extent of clearing, the results of the site inspection (City of Wanneroo, 2022a; City of Wanneroo, 2022c), and the lack of good quality fauna habitat, the application area is not likely to comprise significant habitat for conservation significant fauna, nor be significant for the continued survival of conservation significant fauna. However, individuals may be present at the time of clearing whilst they traverse the landscape. Slow, directional clearing will mitigate the risk to individuals. In addition, the clearing activities have the potential to impact the quality of surrounding fauna habitat by facilitating the spread of weeds and dieback.

Conditions:
To address potential impacts to nearby native vegetation from the proposed clearing and impacts to fauna individuals, the following conditions will be required:

- weed and dieback management measures will be required as a condition on the clearing permit to mitigate impacts to adjacent vegetation.
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity

3.2.2. Land and water resources – Clearing Principle (g)

Assessment

The mapped soil types across the application area are susceptible to land degradation resulting from wind erosion and water erosion. The high wind erosion potential is due to the sandy nature of the topsoil. If appropriate management measures such as ground cover or adequate dust suppression on exposed surfaces are put in place, then it is likely that the environmental impacts caused by wind erosion can be managed. Ensuring works commence within two months of clearing will minimise exposure of bare soils.

Conclusion:
Based on the above assessment, the proposed clearing may cause land degradation through wind erosion. Ensuring works commence within two months will minimise this risk.

Conditions:
To address potential impacts to nearby native vegetation from the proposed clearing, works will be required to commence within two months of clearing.

3.3. Relevant planning instruments and other matters

Spatial data indicates that no Aboriginal Heritage sites occur within the application area. Several Registered and other Aboriginal Heritage sites occur within the local area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to the department at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

A.1. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	17.98
Vegetation complex					
Quindalup complex 55**	54,573.87	33,011.64	60.49	5994.64	10.98
Local area					
10 km radius	20,358.95	14,804.309	72.72	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.2. Site characteristics

Characteristic	Details
Local context	The proposed clearing area comprises 0.9 hectares of native vegetation and is situated parallel to the western side of Two Rocks Road within the Swan Coastal Plain. The application area is surrounded by native vegetation and a foreshore reserve and Yanchep National Park reserve to the east. This application is in the intensive land use zone of Western Australia. Spatial data indicates that the local area (10 Kilometre radius from the centre of the area proposed area) retains approximately 72.72 per cent of the original native vegetation cover.
Ecological linkage	The application area is part of a larger area of vegetation that may act as an ecological linkage. However, the application area is not an integral part of this linkage, The bushland Forever areas mapped as the conceptual linkages within the Gnangara Mound ecological linkages framework are located approximately 230 metres southwest, 2.15 kilometres to the east, and 3.06 kilometres southeast.
Conservation areas	The closest bushland forever area to the application area (Site 397, Two Rocks/ Yanchep.) is located approximately 297 meters at its closest point. The closest area of land managed by DBCA is approximately 28.16 kilometres northeast of the application area. The closest DBCA regional park is Yellagonga regional park, approximately 25.5 kilometres south of the application area.
Vegetation description	The environmental impact assessment (City of Wanneroo, 2022a) indicates the vegetation within the proposed clearing area consists of several weed species: **Ehrharta longiflora, *Eragrostis curvula*, **Leontodon rhagadioloides* and **Trifolium campestre;* and native species: *Acacia rostellifera, Callitris preissii, Melaleuca cardiophylla,* and *Spyridium globulosum*.

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>This is mostly consistent with the mapped vegetation complex:
Quindallup vegetation complex (system 6 ID 55) described as coastal dune complex consisting mainly of two alliances – the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of Melaleuca lanceolata (Rottnest Teatree) – Callitris preissii (Rottnest Island Pine), the closed scrub of Acacia rostellifera (Summer-scented Wattle) and the low closed Agonis flexuosa (Peppermint) forest of Geographe Bay (Hodges et. al, 1980).
The mapped vegetation complex retains approximately 72.72 per cent of the original native vegetation cover within a 10 kilometre buffer of the application area (Government of Western Australia, 2019).</td></tr>
<tr><td>Vegetation condition
From the impact assessment</td><td>The environmental impact assessment (City of Wanneroo, 2022a) indicates the Native vegetation within the proposed clearing area is sparse throughout the proposed clearing area, with vegetation in a Good to Completely Degraded condition. It is estimated that approximately 30-40 per cent of the total clearing area consists of native vegetation, the remainder consists of cleared ground and weed species.

The full Keighery (relates to the south west) (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</td></tr>
<tr><td>Climate and landform</td><td>The climate experienced in the area is a Mediterranean climate, with dry, hot summers and cool, wet winters. Average rainfall is 816 millimetres per annum with the majority falling between June and August (BOM, 2021).

Environmental impact assessment (City of Wanneroo, 2022a) describes that the annual mean rainfall is 729 millimetres per annum and a mean annual of 1800 millilitres of evapotranspiration.</td></tr>
<tr><td>Soil description
(Schoknecht, et al., 2004)</td><td>The soil is mapped as:
Majority portion 52 per cent
<table>
<tr><td>Name</td><td>Quindalup South deep sand flat Phase</td></tr>
<tr><td>Soils</td><td>211Qu__Qp</td></tr>
<tr><td>Description</td><td>Undulating landscapes with deep calcareous sands overlying limestone. Soils have dark grey-brown sand to about 50 cm and then pale brown sand. Remnants of hummocks are often present.</td></tr>
</table>
Minor portion
<table>
<tr><td>Name</td><td>Quindalup South oldest dune Phase</td></tr>
<tr><td>Soils</td><td>211Qu__Q1</td></tr>
<tr><td>Description</td><td>Dunes or remnants with low relief. Calcareous sands have organic staining to about 30 cm, overlying pale brown sand with definite cementation below 1 m.</td></tr>
</table>
Minor portion
<table>
<tr><td>Name</td><td>Quindalup South second dune Phase</td></tr>
<tr><td>Soils</td><td>211Qu__Q2</td></tr>
<tr><td>Description</td><td>A complex pattern of dunes with moderate relief. Calcareous sands have organic staining to about 20 cm, passing into pale brown sand: some cementation below 1 m.</td></tr>
</table></td></tr>
<tr><td>Land degradation risk</td><td>The degradation risk factors mapped over the application area are detailed below:
<table>
<tr><th></th><th>Quindalup 211Qu__Qp</th><th>Quindalup 211Qu__Q1</th><th>Quindalup 211Qu__Q2</th></tr>
</table></td></tr>
</table>

<table>
<tr><th>Characteristic</th><th>Details</th></tr>
<tr><td></td><td>
<table>
<tr><td>Wind erosion</td><td>L2 3-10% extreme risk</td><td>M2 30-50% extreme risk</td><td>H1 50-70% extreme risk</td></tr>
<tr><td>Water erosion</td><td>L2 3-10% high to extreme risk</td><td>M2 30-50% high to extreme risk</td><td>L2 3-10% high to extreme risk</td></tr>
<tr><td>Salinity risk</td><td>L1 <3%</td><td>L1</td><td>L1</td></tr>
<tr><td>Phosphorous export</td><td>M1 10-30%</td><td>M2 30-50%</td><td>M1</td></tr>
<tr><td>Waterlogging</td><td>L1</td><td>L1</td><td>L1</td></tr>
</table>
<table>
<tr><td>Subsurface acidification</td><td>L1 <3%</td><td>L1</td><td>L1</td></tr>
<tr><td>Acid sulphate soils</td><td>L1</td><td>L1</td><td>L1</td></tr>
</table>
<table>
<tr><td>Flooding</td><td>L1 <3%</td><td>L1</td><td>L1</td></tr>
<tr><td>Floodplains</td><td>No</td><td>No</td><td>No</td></tr>
</table>
</td></tr>
<tr><td>Waterbodies</td><td>The desktop assessment and aerial imagery indicated that the closest mapped wetland to the application area is Loch Mcness, a conservation category wetland swamp, approximately four kilometres northeast. The Indian Ocean is located directly west from the application area.</td></tr>
<tr><td>Hydrogeography</td><td>
<table>
<tr><td>Hydrological Zone</td><td>Coastal Plain</td></tr>
<tr><td>Basin</td><td>Sawn Costal (UFI 616)</td></tr>
<tr><td>Hydrographic Catchment</td><td>_Coastal</td></tr>
</table>
<table>
<tr><td>RIWI Act Surface Water and Irrigation District</td><td>No</td><td></td></tr>
<tr><td>RIWI Act Rivers</td><td>No</td><td></td></tr>
<tr><td>RIWI Act Groundwater Areas</td><td>Yes</td><td>Yanchep Groundwater Area (UFI 34)</td></tr>
<tr><td>CAWS Act Clearing Control Catchment</td><td>No</td><td></td></tr>
<tr><td>Public Drinking Water Source Areas</td><td>Yes</td><td>Perth Coastal and Gwelup underground water pollution control area.</td></tr>
<tr><td>Wellhead Protection Zone</td><td>No</td><td></td></tr>
<tr><td>Reservoir Protection Zone</td><td>No</td><td></td></tr>
</table>
The application area is mapped within Yanchep Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914.*
</td></tr>
<tr><td>Flora</td><td>According to available database, 23 conservation significant flora species have been recorded within the local area (10-kilometre buffer). Comprising one Threatened, three Priority 1, five Priority 2, 10 Priority 3 and four Priority 4 flora taxa. None of these records occur within the application area.
The vegetation is dominated by several weed species: **Ehrharta longiflora, *Eragrostis curvula*, **Leontodon rhagadioloides* and **Trifolium campestre;* and two native species: *Acacia rostellifera* and *Spyridium globulosum (*City of Wanneroo, 2022a).</td></tr>
<tr><td>Ecological communities</td><td>According to available databases, five conservation significant ecological communities have been mapped within the local area (10-kilometre buffer). None of these records occur over the application area.</td></tr>
<tr><td>Fauna</td><td>According to available database, 37 conservation significant fauna species have been recovered within the local area comprising one Priority 1, one Priority 2, three Priority 3, four priority 4, 10 specially protected Migratory species, six Vulnerable species, four Endangered species, one Critically endangered species, one specially protected species (OS) and one specially protected species (conservation dependent; CD), fauna taxa. Of these, 25 fauna are associated with marine, estuarine or freshwater habitats that do not occur within the application area.</td></tr>
</table>

Characteristic	Details
	Of the 12 terrestrial fauna species, the nearest records are *Isoodon fusciventer* (quenda; Priority 4) and *Calyptorhynchus latirostris* (Carnaby's cockatoo; endangered) located approximately 0.02 kilometres and 0.8 kilometres from the application area, respectively. The nearest confirmed black cockatoo roost site is located approximately 1.85 kilometres from the application area. There are nine in total black cockatoo roosting sights within a 12 kilometre buffer of the application area (Figure a). Noting the habitat requirements, distribution of the recorded species, the mapped vegetation type, the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for the following fauna species: • Quenda • Carnaby's cockatoo • Graceful sun moth • Black-striped snake, black-striped burrowing snake The City's Environmental Planning Considerations Report (EPCR) City of Wanneroo, 2022c) and the City's 'Desktop Assessment Report for Native Vegetation Clearing (NVC) (City of Wanneroo, 2022b) Application' did not identify any instances of threatened or priority fauna species within the selected footprint. Protected fauna species were however identified within a 5 kilometres radius of the selected area.

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix A), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Acacia benthamii	P2	N	N	Y	5.4	5	Y
Amanita wadulawitu	P2	N	N	Y	9.7	2	N
Baeckea sp. Limestone (N. Gibson & M.N. Lyons 1425)	P1	N	N	Y	8.1	1	N
Calandrinia oraria	P3	Y	Y	Y	3.6	1	N
Conostylis bracteata	P3	Y	N	Y	5.6	1	Y
Conostylis pauciflora subsp. *euryrhipis*	P4	Y	Y	Y	3.0	16	Y
Conostylis pauciflora subsp. *pauciflora*	P4	Y	Y	N	7.3	4	Y
Eucalyptus argutifolia	T	Y	Y	Y	2.0	13	Y
Eucalyptus foecunda subsp. *foecunda*	P4	Y	Y	Y	3.4	6	Y
Haloragis luminosa	P1	N	N	N	9.0	3	Y
Hibbertia leptotheca	P3	Y	Y	Y	3.0	7	Y
Lasiopetalum membranaceum	P3	N	N	Y	5.8	2	Y
Lecania sylvestris	P2	Unknown	Unknown	Y	5.6	1	Y
Lecania turicensis var. *turicensis*	P2	N	N	N	2.0	1	Y
Lepidium pseudotasmanicum	P4	N	N	Y	7.1	3	Y
Leucopogon maritimus	P1	Y	Y	Y	4.8	15	Y

Species name	Conservation status	Suitable habitat features ? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Leucopogon sp. Yanchep (M. Hislop 1986)	P3	Y	Y	Y	7.1	13	Y
Pimelea calcicola	P3	Y	Y	Y	5.6	4	Y
Placynthium nigrum	P3	N	N	N	5.6	1	Y
Rinodina bischoffii	P2	Poorly known	Poorly known	Y	5.6	1	Y
Sphaerolobium calcicola	P3	N	N	N	5.6	2	Y
Stylidium maritimum	P3	Y	Y	Y	3.0	11	Y
Styphelia filifolia	P3	N	N	N	4.8	1	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority y

A.4. Fauna analysis table

1	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Birds						
Anous tenuirostris melanops (Australian lesser noddy)	EN	N	N	5.7	1	Y
Apus pacificus (Fork-tailed swift)	MI	Y	Y	6.6	1	Y
Zanda latirostris (Carnaby's cockatoo)	EN	Y	N	0.8	465	Y
Calyptorhynchus sp. 'white-tailed black cockatoo'	EN	Y	N	3.4	4	Y
Tyto novaehollandiae novaehollandiae (masked owl (southwest))	P3	N	Y degraded	5.8	1	Y
Mammals						
Bettongia penicillata ogilbyi (woylie, brush-tailed bettong)	CR	N	Y degraded	6.4	1	Y
Dasyurus geoffroii (Chuditch, western quoll)	VU	N	N	5.8	2	Y
Isoodon fusciventer (Quenda, southwestern brown bandicoot)	P4	N	Y degraded	0.02	10	Y
Reptiles						
Delma concinna major (Javelin legless lizard (Shark Bay))	P1	Y	Y	7.5	1	Y
Neelaps calonotos (Black-striped snake, black-striped burrowing snake)	P3	Y	Y degraded	2.1	3	Y
Invertebrates						
Idiosoma sigillatum (Swan Coastal Plain shield-backed trapdoor spider)	P3	Y	Y	5.8	1	N
Synemon gratiosa (Graceful sunmoth)	P4	Y	Y	1.6	167	Y

1	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Note: According to available database, 37 conservation significant fauna species have been recovered within the local area comprising one Priority 1, one Priority 2, three Priority 3, four priority 4, 10 specially protected Migratory species, six Vulnerable species, four Endangered species, one Critically endangered species, one specially protected species (OS) and one specially protected species (conservation dependent; CD), fauna taxa. Of these, 25 fauna are associated with marine, estuarine or freshwater habitats that do not occur within the application area, and have been excluded from table.

A.5. Ecological community analysis table

Community name	Conservation status	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Aquatic Root Mat Community Number 1 of Caves of the Swan Coastal Plain	CR	N	N	5.8 km	7	N/A
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	N	N	2.8 km	188	Y
Melaleuca huegelii - Melaleuca systena shrublands on limestone ridges (floristic community type 26a as originally described in Gibson et al., (1994))	EN	N	Y	3.2 km	23	Y
Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain	P3	N	N	2.1 km	93	Y
Woodlands over sedgelands in Holocene dune swales of the southern Swan Coastal Plain (original description; Gibson et al., (1994).	CR	N	N	7.3 km	1	N/A

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The environmental impact assessment identified no conservation signficant flora or communites. A total of 40 flora species were identified during the survey, including 16 native flora and 24 weed species (City of Wanneroo, 2022a). The application area is not deemed to comprise a high area of biodiversity.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: The application area includes suitable habitat for conservation signficant fauna and may be used by fauna traversing the landscape.	Not likely to be at variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain *Threatened flora*. environmental impact assessment *identified no* Threatened flora (City of Wanneroo, 2022a).	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contain species that can indicate a threatened ecological community (TEC). The environmental impact assessment did not record any TECs within the application area (City of Wanneroo, 2022a). The vegetation within the application area is not likely to comprise the whole or a part of, or be necessary for the maintenance of, a TEC.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The extent of the mapped vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area. Utilising remnant native vegetation mapping data approximately 14,000 hectares of native vegetation is retained within the local area of a 10-kilometre radius of the application area, representing approximately 72 per cent of the original occurrence (Government of Western Australia, 2019a) (Appendix F, figure (b)). The proposed clearing is not considered significant as a remnant of native vegetation in an area that has been extensively cleared.	Not likely to be at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of adjacent and/or nearby conservation areas. The closest DBCA land of	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
interest area is located approximately 2.16 kilometres east this the northern extension of Yanchep National Park.		
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: No water courses, wetlands or vegetation is growing in association with a watercourse or wetland in the application area. The native vegetation proposed for clearing is not growing in, or in association with, an environment associated with a watercourse or wetland.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the sandy soils present mapped within the application area, it is considered that the proposed clearing may cause land degradation in the form of wind erosion.	May be at variance	Yes *Refer to Section 3.2.3, above.*
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: No water courses or wetlands are recorded within the application area. Soils will not be excavated at depth and risks to groundwater are low. The proposed clearing therefore is unlikely to impact surface or ground water quality.	Not likely to be at variance	*No*
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.	Not likely to be at variance	*No*

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the Southwest and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.

Condition	Description
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. 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/or 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/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Biological survey information excerpts

Table 1. list of Native and non-native species identified during the vegetation assessment on 02/09/2022 (City of Wanneroo, 2022a). Note: some species names are incorrect within the table, the corrected spellings are (*Dodonaea aptera, Exocarpos sparteus, Spyridium globulosum, Lagurus ovatus, Moraea flaccida*). *Opp – Opportunistic sighting

NATIVE SPECIES	WEED/PLANTED SPECIES
Acacia lasiocarpa (opp)	*Arctotheca calendula*
Acacia rostellifera	*Brassica tournefortii*
Acacia cochlearis	*Bromus diandrus*
Acanthocarpus preissii	*Ehrharta calycina*
Allocasuarina lehmanniana (opp)	*Ehrharta longiflora*
Callitris preissii	*Eragrostis curvula*
Clematis linearifolia	*Erodium moschatum*
Dodonea aptera (opp)	*Euphorbia peplus*
Exocarpus sparteus	*Euphorbia terracina*
Hardenbergia comptoniana	*Foeniculum vulgare*
Lepidosperma gladiatum	*Fumaria capreolata*
Melaleuca cardiophylla	*Gazania linearis*
Olearia axillaris	*Lagarus ovatus*
Rhagodia baccata	*Leontodon rhagadioloides*
Scaevola crassifolia	*Lolium perenne*
Spyridium globulosom	*Medicago littoralis*
[redacted]	*Morea flaccida*
	Oxalis pes-caprae
	Pelargonium capitatum
	Plantago lanceolata
	Poa annua
	Sonchus oleraceus
	Trachyandra divaricata
	Trifolium campestre

1. Representative site photographs (City of Wanneroo, 2021a)

Figure C: Vegetation assessment locations (red points) along the proposed clearing area on the western verge of Two Rocks Road (Yanchep – Two Rocks) (City of Wanneroo, 2022a).

Figure D: Assessment point 1, Notable species, *Acacia rostellifera, Rhagodia baccata,* and *Spyridium globulosum* (City of Wanneroo, 2023).

Figure E: Assessment point 2, Notable species *Acacia rostellifera, Acanthocarpus preissii, Hardenbergia comptoniana, Melaleuca cardiophylla,* and *Spyridium globulosum* (City of Wanneroo, 2023).

Figure F: Assessment point 3, Notable species, *Acacia rostellifera, Callitris preissii, Melaleuca cardiophylla, Scaevola crassifolia,* and *Spyridium globulosum* (City of Wanneroo, 2023).

Figure G: Assessment point 4, Notable species, Acacia rostellifera, Acanthocarpus preissii, Clematis linearifolia, Exocarpus sparteus, Scaevola crassifolia and Spyridium globulosum (City of Wanneroo, 2023).

Figure H: Assessment point 5, Notable species, *Acacia rostellifera, Hardenbergia comptoniana, Melaleuca cardiophylla, Scaevola crassifolia* and *Spyridium globulosum* (City of Wanneroo, 2023)

Figure I: Assessment point 6, Notable species, *Acacia rostellifera, Acacia cochlearis, Lepidosperma gladiatum* and *Spyridium globulosum* (City of Wanneroo, 2023).

Appendix E. Sources of information

E.1.GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

E.2. References

City of Wanneroo (2022) *Clearing permit application CPS 9960/1*, received 17 November 2022 (DWER Ref: DWERDT687747).

City of Wanneroo (2022a) *Supporting information for clearing permit application CPS 9960/1 - Environmental impact assessment.* Received 17 November 2022 (DWER Ref: DWERDT687743).

City of Wanneroo (2022b) *Supporting information for clearing permit application CPS 9960/1 – Desktop assessment report for native vegetation clearing NVC application*. Received 17 November 2022 (DWER Ref: DWERDT687733).

City of Wanneroo (2022c) *Supporting information for clearing permit application CPS 9960/1 – Environmental planning considerations report (EPC).* Received 17 November 2022 (DWER Ref: DWERDT687734).

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