



## CLEARING PERMIT

*Granted under section 51E of the Environmental Protection Act 1986*

<b>Purpose Permit number:</b>	CPS 10386/1
<b>Permit Holder:</b>	C-Wise Holdings Pty Ltd
<b>Duration of Permit:</b>	From 19 July 2024 to 19 July 2029

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

### **PART I – CLEARING AUTHORISED**

#### **1. Clearing authorised (purpose)**

The permit holder is authorised to clear *native vegetation* for the purpose of constructing a carbon recycling facility, including roads, infrastructure and borrow pits.

#### **2. Land on which clearing is to be done**

Lot 9500 on Deposited Plan 414516, Keralup

#### **3. Clearing authorised**

The permit holder must not clear more than 6.21 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

### **PART II – MANAGEMENT CONDITIONS**

#### **4. 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.

#### **5. 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.

## 6. Directional clearing

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

## 7. Land degradation management

The permit holder must ensure that works activities commence within three (3) months of the authorised clearing being undertaken to reduce the risk of soil erosion by minimising the exposure time of soils prior to construction.

## PART III - RECORD KEEPING AND REPORTING

## 8. 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	<ul style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(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;</li> <li>(c) the date that the area was cleared;</li> <li>(d) the direction of clearing;</li> <li>(e) the size of the area cleared (in hectares);</li> <li>(f) the date construction of the facility commenced;</li> <li>(g) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4;</li> <li>(h) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 5; and</li> <li>(i) actions taken in accordance with conditions 6 and 7.</li> </ul>

## 9. Reporting

The permit holder must provide to the *CEO* the records required under condition 8 of this permit when requested by the *CEO*.

## DEFINITIONS

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

**Table 2: Definitions**

<b>Term</b>	<b>Definition</b>
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
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 <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (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 – <ul style="list-style-type: none"> <li>(a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or</li> <li>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or</li> <li>(c) not indigenous to the area concerned.</li> </ul>

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## END OF CONDITIONS



**Meenu Vitarana**  
**Manager**

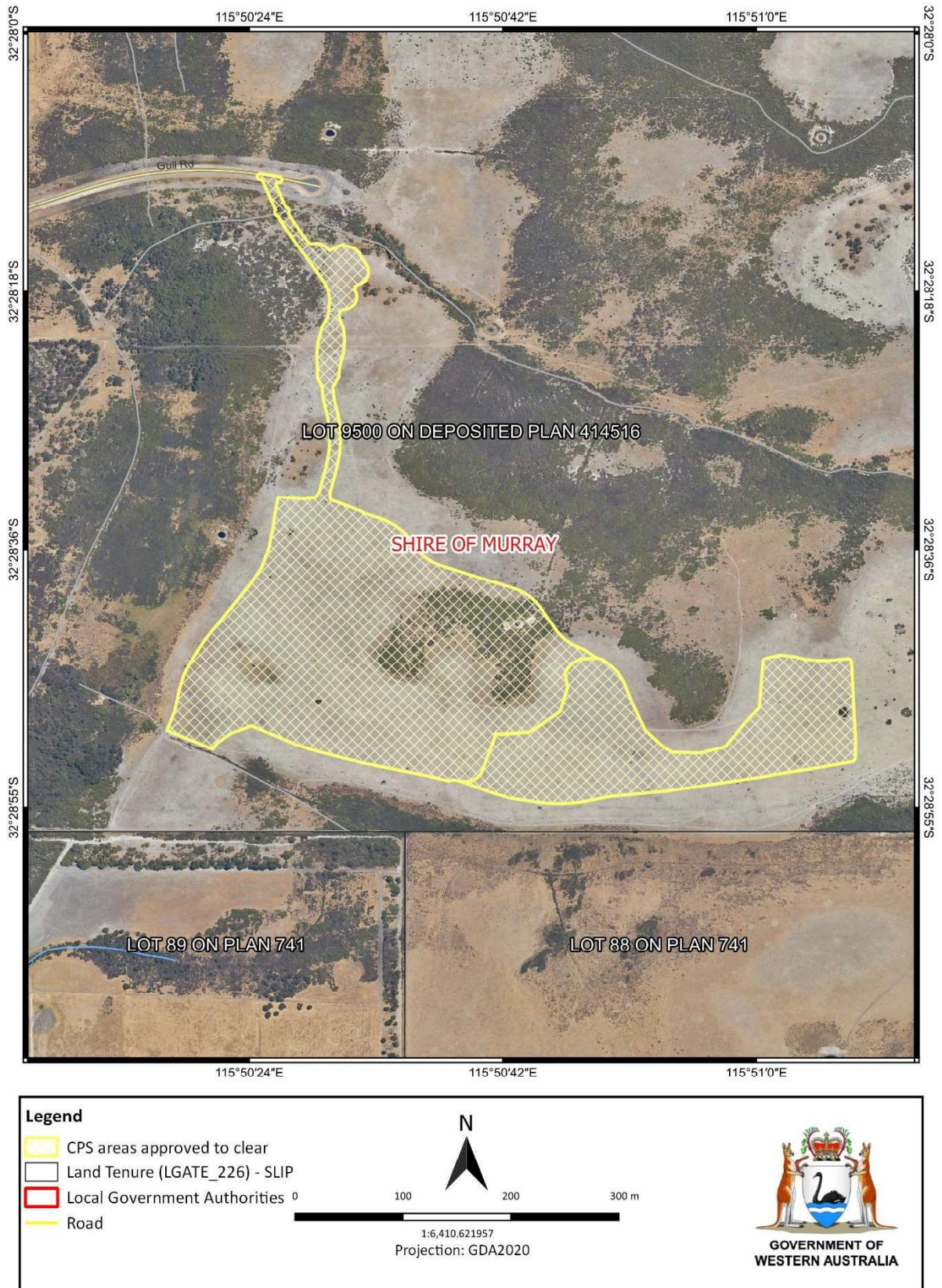
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

26 June 2024

# Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).



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



## Clearing Permit Decision Report

### 1 6.21 Application details and outcome

#### 1.1 Permit application details

<b>Permit number:</b>	CPS 10386/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	C-Wise Holdings Pty Ltd
<b>Application received:</b>	19 October 2023
<b>Application area:</b>	6.21 hectares of native vegetation
<b>Purpose of clearing:</b>	Construction of a carbon recycling facility, including roads, infrastructure and borrow pits
<b>Method of clearing:</b>	Mechanical clearing; bulldozing and cutting
<b>Property:</b>	Lot 9500 on Deposited Plan 414516
<b>Location (LGA area/s):</b>	Shire of Murray
<b>Localities (suburb/s):</b>	Keralup

#### 1.2 Description of clearing activities

The vegetation proposed to be cleared is 6.21 hectares distributed across a 44.6 hectare footprint (see Figure 1, Section 1.5), with approximately 88 per cent of the application area consisting of bare ground in completely degraded condition.

The area proposed to be cleared is to facilitate the construction of a composting carbon recycling facility, which includes roads, infrastructure and borrow pits.

The application area was revised during the assessment process to further avoid areas of vegetation and to improve buffers between the facility and the adjacent wetlands (outlined in 3.1 and Appendix A.)

#### 1.3 Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	26 June 2024
<b>Decision area:</b>	6.21 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 B), relevant datasets (see Appendix F.1), the findings of a biological survey and supporting information (see Appendix E), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration

the purpose of the clearing is to facilitate the construction of a government funded composting project to provide public benefit to the wider community.

The assessment identified that the proposed clearing will result in:

- the clearing of vegetation consisting of habitat for conservation significant fauna,
- the clearing of remnant native vegetation in an area that has been extensively cleared,
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values,
- the loss of vegetation associated with a resource enhancement wetland system,
- clearing of vegetation associated with a watercourse, and
- potential land degradation in the form of wind erosion.

After consideration of the available information, as well as the applicant's avoidance and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation or have long-term adverse impacts on environmental values of fauna habitat, remnant vegetation, wetlands and watercourses. The assessment determined the risks to environmental values can be minimised and managed to unlikely lead to an unacceptable risk (see section 3.2). The applicant has suitably demonstrated avoidance and minimisation measures, and additional conditions are implemented on the permit to further mitigate the risks.

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,
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity, and
- commence works within three months of the clearing to reduce the risk of soil erosion.

1.5 Site map

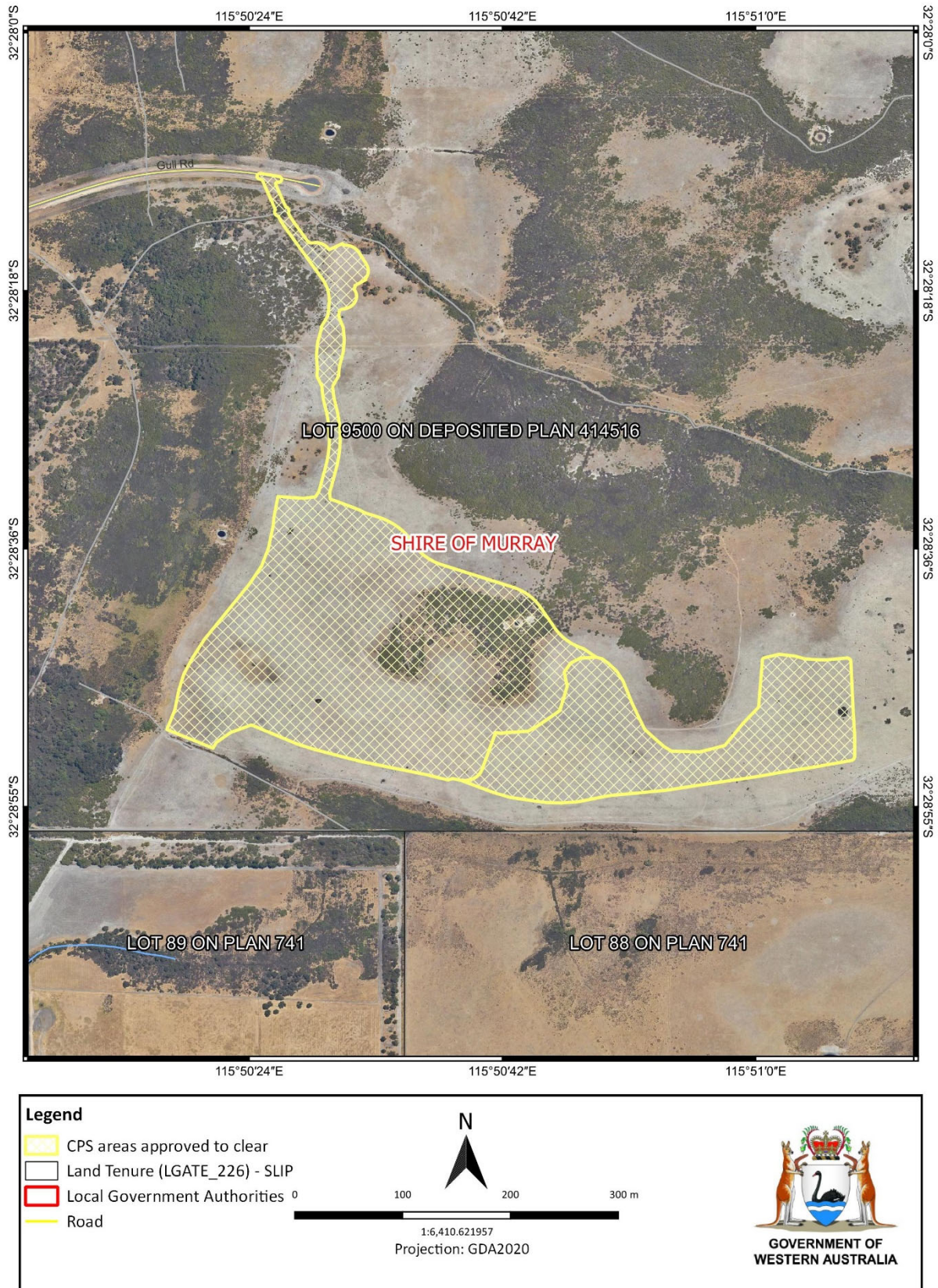


Figure 1 Map of the application area  
The area crosshatched yellow indicates the area authorised to be cleared under the granted clearing permit.

## 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)
- *Conservation and Land Management Act 1984* (WA) (CALM 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

Evidence was submitted by the applicant, demonstrating avoidance and mitigation was considered including:

- facility design avoided vegetation where possible,
- the application area was reduced from 6.55 hectares to 6.21 hectares (a 5.1 per cent reduction)
- 50 metre buffers between the facility and the conservation category wetlands have been incorporated into the design of the facility,
- Black cockatoo habitat (*Eucalyptus marginata* woodland) was excluded from the application area,
- a fence between the facility and the surrounding wetlands will be established,
- topsoil of the burrow pit will be retained and respread,
- weed and dieback management will be adopted,
- revegetation of areas not developed by the facility,
- groundwater management, stormwater management and leachate plans area incorporated

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 C) 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 C) identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation), significant remnant vegetation, land and water resources. 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 (Fauna) - Clearing Principles (a) and (b)

##### Assessment

Within the local area 30 conservation significant fauna species have been recorded. The distance to the nearest mapped record, with suitable habitat features (see Appendix B.3 for the fauna analysis) determined four species were likely to occur within the application area including the quenda and three black cockatoo species, and the chuditch.



### Quenda (*Isoodon fusciventer*)

The quenda (*Isoodon fusciventer*) is a small nocturnal ground dwelling marsupial, endemic to southwestern Australia and is listed as a priority 4 species under the *Biodiversity Conservation Act 2016* (BC Act). Quenda requires a dense understorey for cover and are often found digging in leaf litter for invertebrates, earthworms, beetles and plant material, generally inhabiting forests, woodlands, and heathlands (DBCA, 2017c).

Within the local area there are 468 mapped records of the quenda, with the nearest mapped record located 2.78 kilometres from the application area and are known to occur within Lot 9500, Keralup. During the field survey conducted between October and November 2021, several quenda were trapped in a number of locations across the wider lot. The outcomes of this survey concluded the quenda is widely distributed across Lot 9500 (PGV, 2022).

Given the quenda is known to be distributed across the entire property it is likely for the species to occur within the application area. Noting the application area contributes to less than one per cent of the native vegetation on the wider Lot 9500, and noting the clearing footprint is predominantly bare ground with isolated patches of vegetation, the dense understorey preferred by the quenda is not likely to be present within the application area. Further, noting the clearing footprint is surrounded by better quality vegetation, the clearing is unlikely to significantly impact the quenda population on Lot 9500.

### Chuditch (*Dasyurus geoffroi*)

The chuditch, or western quoll, (*Dasyurus geoffroi*) is the largest carnivorous marsupial found in Western Australia. It is largely restricted to southwest Western Australia and is therefore listed as vulnerable under the EPBC Act. The chuditch primarily inhabits jarrah forests and woodlands, mallee shrublands and heathlands. Their home ranges extend up to 15 square kilometres for males and 3 to 4 square kilometres for females. They are dependent on an adequate number of suitable dens and refuge sites; typically found in hollow logs, tree limbs, rocky outcrops and burrows as well as sufficient prey biomass (which includes large invertebrates, reptiles and small mammals) (DBCA, 2017b).

Within the local area, there are seven mapped records of the chuditch with the closest record mapped 4.1 kilometres from the application area. The most recent record was recorded in 2016 and was located 5.04 kilometres away. The field survey of Lot 9500 (PGV, 2022) did not record evidence of the chuditch occurring and historically, records of the chuditch have been absent on Lot 9500. While the application area contains patches of suitable habitat features for foraging, noting the application footprint contains expansive areas of bare ground, the absence of jarrah forests and woodlands (which is preferred habitat) and noting the better condition vegetation adjacent to the application area while it is possible for the chuditch to occur it is unlikely the clearing will significantly impact the chuditch in a local context.

### Black cockatoos

Within Western Australia two black cockatoo species; Carnaby's (*Zanda latirostris*), Baudin's (*Zanda baudinii*) are listed as endangered under the EPBC Act, and one; forest red-tail black cockatoo (*Calyptorhynchus banksii naso*), is listed as vulnerable. Black cockatoos are long-lived, slow-breeding birds which display strong pair bonds and nest within tree hollows. They forage over a large area, feeding on a variety of native and introduced plant species depending on source availability (DCCEEW, 2022). Black cockatoos will forage up to 12 kilometres from their nest locations during breeding season and up to 20 kilometres from known roost sites outside of the breeding season. Night roost sites are typically within two kilometres from reliable watering points. Remnant patches of vegetation are considered important in maintaining black cockatoo habitat connectivity across the landscape (DCCEEW, 2022).

The application area is situated within the known distribution of all three black cockatoo species and the vegetation outside the application area on Lot 9500 contains a number of large trees (mostly Marri), of suitable size for breeding and roosting (PGV 2022). Within the local area there are 348 records of Carnaby's cockatoo and 101 records of the forest red-tail black cockatoo with the nearest mapped record for both within four kilometres and one record of Baudin's cockatoo mapped approximately 8 kilometres from the application area.

The PGV survey (2022) identified a patch of Jarrah (*Eucalyptus marginata*) woodland intersecting the clearing footprint which was identified as potential breeding and roosting habitat for black cockatoos. During the assessment of the clearing permit this patch of jarrah was excluded from the clearing area and therefore the clearing does not contain vegetation suitable for black cockatoo breeding or roosting.

The remnant vegetation within the clearing footprint is mapped as black cockatoo foraging habitat and the survey identified the patches as *Kunzea glabrescens* tall open scrub *Astartea affinis* open heath or *K. glabrescens* scattered shrubs. *K. glabrescens* has been identified as one of many flora species utilised by Carnaby's black cockatoo on the

swan coastal plain (Johnston, 2013). While all species which contribute as a foraging source hold value for Carnaby's cockatoo, *K. glabrescens*, is not considered a dominant foraging source, and given the scale of the clearing is 6.55 hectares of degraded vegetation the clearing is unlikely to impact Carnaby's cockatoo.

Given there is only one mapped record of Baudin's cockatoo within the local area and noting the absence of suitable foraging species within the clearing footprint, it is unlikely the proposed clearing will significantly impact the Baudin's cockatoo. While the forest red-tail black cockatoo consists of 101 mapped records within the local area, given the application area is absent of roosting and breeding habitat as well as preferred foraging species of jarrah and marri seeds, *Allocasuarina* cones, snotty gobbler and mountain marri, it is unlikely the clearing will have significant impact on the forest red-tail black cockatoo.

### Conclusion

Given the above assessment it is unlikely the proposed clearing will significantly impact the conservation status of the chuditch, Carnaby's cockatoo, Baudin's cockatoo, forest red-tail black cockatoo or the quenda. This is attributed to the better quality vegetation located adjacent to the application area, the extent of the clearing, as well as the absence of suitable habitat and preferred foraging species. Given the quenda is known to occur within the application area, conditions outlined below have been implemented on the permit to further mitigate impacts to fauna.

### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals, if they are present at the time of the clearing.

## **3.2.2 Biological values (Flora) - Clearing Principles (a)(c) and (d)**

### Assessment

The initial desktop assessment identified the proposed clearing likely contains suitable habitat for conservation significant flora species and is mapped as a Banksia Woodlands of the Swan Coastal Plain ecological community.

### Conservation significant flora

Within the local area (a 10-kilometre radius), 25 conservation significant flora have been recorded. The closest flora record is *Caladenia speciosa*, a Priority 4 species located 0.38 kilometres from the application area, and *Drakaea elastica*, a threatened flora species mapped 0.57 kilometres from the application area. Given the proximity of the mapped records to the application area, along with the mapped habitat features and soil type, these two species were considered likely to occur. The flora survey (PGV, 2022) did not record either of these species within the application area. However, it should be noted that the survey covered the entire Lot 9500 rather than specifically targeting the application footprint, and only one quadrat was sampled within the application area. The desktop assessment concluded that the species were likely to occur, prompting advice from the Department of Biodiversity Conservation and Attractions (DBCA, 2024). The DBCA concluded; given, *C. speciosa* is known from over 20 locations over a relatively wide range and the present habitat within the application area is relatively small in size and previously modified, if the species were to occur, the impacts are unlikely to be significant at any level. For *D. elastica*, although it is a threatened species, it is known from approximately 3,000 plants from 54 populations and has been found to have a higher survival rate in sites with relatively little direct sun exposure, indicating a preference for areas with a shady canopy (DEC, 2009). Noting the vegetation type within the application area with the relatively open canopy and given that the application area has been previously cleared and is modified with low species diversity, if the species were to occur, it is unlikely to occur in high numbers and would have a low likelihood of persistence, therefore, impacts are unlikely to be significant at a species level.

Three Priority flora species were recorded within the local area and are considered possible to occur, including; *Johnsonia pubescens* subsp. *cygnorum* (P2), *Stylidium longitubum* (P4) and *Dillwynia dillwynioides* (P3). However, the flora survey did not identify any of the species to occur within the application area. As majority of the clearing footprint has been previously cleared and is disturbed in a good to completely degraded condition, with the vegetation of the proposed clearing being predominately *Kunzea glabrescens*, which is not a suitable vegetation type for the three priority species, it is unlikely for these to occur within the application area.

### Ecological Communities

According to available datasets, the remnant vegetation within the application area is mapped as Banksia Woodlands of the Swan Coastal Plain, federally listed as an endangered threatened ecological community and state listed as a Priority 3 ecological community. Key features of this community include a prominent tree layer of Banksia species, with scattered eucalypts and other tree species among the Banksia canopy. The understory is a species-rich mix of

sclerophyllous shrubs, graminoids, and forbs (DEE, 2016). Typically, the community occurs on well-drained, low nutrient soils on sandplain landforms, particularly Bassendean and Spearwood sands. It can be considered part of the community in good quality patches of representative vegetation. A degraded patch may still contribute to the function of the community; however, these small degraded patches are not considered as part of the EPBC Act ecological community.

The survey provided (PGV, 2022) described the vegetation type of the entirety of Lot 9500. While 22 per cent of the lot is mapped as Banksia Woodlands of the Swan Coastal Plain, *Banksia* was not described as the dominant species in any described vegetation type. The vegetation type described within the application area is *Kunzea glabrescens* scattered shrubs and *Kunzea glabrescens* tall open scrub over *Astartea affinis* open heath, varying in condition from good to completely degraded. Noting the absence of *Banksia* from the application area and the wider lot, and considering the condition of the vegetation, the area proposed to be cleared is not representative of the Banksia Woodland TEC and therefore, the clearing is unlikely to affect the conservation status of the Banksia Woodlands of the Swan Coastal Plain ecological community.

#### Conclusion

Based on the above assessment, the proposed clearing is unlikely to have a significant impact on threatened or priority species at the species level. Given the types of vegetation identified during the survey, the application area does not represent an ecological community. Therefore, it is unlikely to affect the conservation status of the Banksia Woodland of the Swan Coastal Plain ecological community.

#### Conditions

No flora conditions required.

### **3.2.3 Significant remnant vegetation - Clearing Principle (e)**

#### Assessment

The national objectives and targets for biodiversity conservation in Australia have a target to prevent the clearance of ecological communities with an extent below 30 per cent of that present pre-1750, below which species loss appears to accelerate exponentially at an ecosystem level (Commonwealth of Australia, 2001). Noting that the current vegetation extent for the mapped Swan Coastal Plain vegetation complex (Bassendean Complex-Central and South) and vegetation extent within the local area fall below the 30 per cent threshold (see Appendix B.2), the application area is considered to be located within an extensively cleared landscape.

The application area represents approximately 0.07 per cent of the remnant vegetation within the local area, 0.03 per cent of the Bassendean Complex (Central and South), and 0.001 per cent of all remaining vegetation on the Swan Coastal Plain. Given the extent of the clearing is 6.21 hectares within a 44.6 hectare footprint which consists of predominately completely degraded (88 per cent of the application area is bare ground) to degraded vegetation and noting the good quality vegetation only attributes to 3.6 per cent of the overall footprint, the remnant vegetation is not considered significant in the wider context of the local area and the Bassendean Complex within which it has been mapped. Further, noting the application area is not likely to include flora or ecological communities of conservation significance or comprise significant habitat for indigenous fauna (see 3.2.1 and 3.2.2 above), the application area is unlikely to be significant as a remnant of native vegetation in an area that has been extensively cleared.

The biological surveys of Lot 9500 identified the vegetation proposed to be cleared is in a degraded to good condition with the presence of weed species in the understorey. Given this, the proposed clearing has the potential to facilitate the spread of weeds into adjacent remnant vegetation. Although not identified within Lot 9500, dieback has been mapped in a portion of land directly northeast of the lot and given dieback is known within the local area, the movement of machinery to facilitate the clearing has the potential to spread dieback into remnants of native vegetation within the lot and surrounding remnant vegetation.

#### Conclusion

Based on the above assessment, given the small extent of the clearing and the condition of the vegetation proposed to be cleared, it is unlikely the clearing will significantly impact the remnant vegetation of the local area or the Bassendean vegetation complex.

Given the proposed clearing has the potential to introduce and spread weeds and dieback, management measures are required to mitigate the impacts of the clearing and to avoid further deterioration of remnant vegetation.

#### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials,

**3.2.4 Water resources - Clearing Principles (f) and (i)**

Assessment

The desktop assessment identified a number of palusplain wetlands and manmade water lines intersecting and adjacent to the application area (see Figure 2 below). Of the 44.6 hectare clearing footprint 1.83 per cent is mapped as a multiple use wetland (UFI 16021) in the northern portion of the clearing footprint and 13.88 per cent is mapped as resource enhancement (UFI 15853) located within the central portion of the application area. To the west and south of the application footprint the wetlands are mapped as conservation category wetlands (UFI 15856, west and UFI 15857, south).

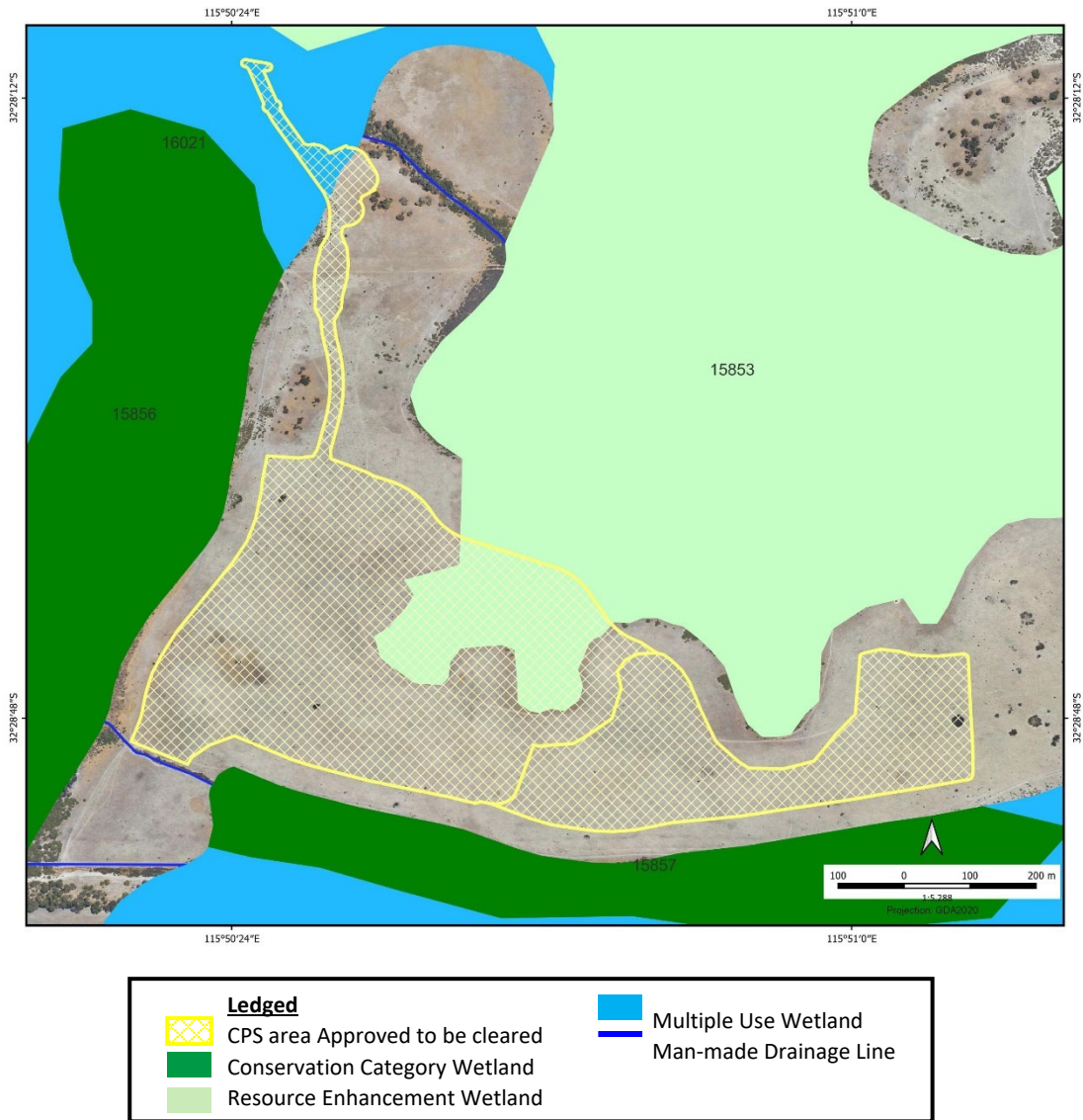


Figure 2 Wetlands and watercourses associated with the application area.

The current the geomorphic wetland of the Swan Coastal Plain (GWSCP) mapping dataset (as above in Figure 2) identifies wetland UFI 15853 as a resource enhancement wetland. This wetland occurs both within and surrounding the northeastern portion of the application footprint. Resource enhancement wetlands are described as having been partly modified, however still supports substantial functions and attributes (WAPC, 2005). The vegetated areas of this wetland remain as a resource enhancement wetland (Talis Consultants, 2023a). Although not mapped within the application footprint, the DBCA has advised that a portion of this system; located directly north of the centre of the burrow pit (UID 3905\_7355) is commensurate with a Conservation Category wetland, therefore an appropriate buffer of 50 metres between the application footprint and the wetland should be maintained (DBCA, 2024). The applicant modified the facility design to ensure a 50 metre separation distance from the facility to the conservation category wetland ( Talis Consultants, 2024c).

The portion of the UFI 16021 wetland which intersects the application footprint has been mapped in the GWSCP dataset as multiple use. Multiple use wetlands are described as a wetland with few remaining important attributes and functions, this categorisation is consistent with the degraded to completely degraded vegetation of this area of the application footprint (DBCA, 2017a).

Located at the most northern section a drainage channel intersects the application footprint and running adjacent to the south west corner is a second drainage channel which may be impacted by the clearing. These two drainage channels are a part of a dense drainage network associated with the Lot 9500. This network is an important system to assist in the management of the groundwater level during the wet season and assists with rainfall runoff (FSG, 2023). These drainage systems also connect downstream to the Serpentine River, therefore without appropriate management plans in place, the quality of the Serpentine River and surrounding wetlands have the potential to be impacted by the clearing. Given the importance of these drainage systems the applicant has provided detailed groundwater level management as well as surface water and leachate management plans to mitigate the impacts to the water level and quality of these drainage systems. The road design over the northern drainage channel also includes the installation of culverts to maintain existing water flow (Talis Consultants, 2024c).

The applicant has advised that the measures set out in these documents will manage potential offsite impacts to the adjacent wetland vegetation, as well as indirect impacts to surface and groundwater quality, and include:

- Dust management during clearing and construction,
- Construction of a fence between the application footprint and the surrounding wetlands,
- Leachate management plan
- Regular monitoring of the surface water management systems,

It should be noted that impacts to hydrology and water quality resulting from the end land-use (i.e., the operation of the composting facility) are considered as part of the Development Approval under the Planning & Development Act and water licenses under the RIWI Act (see Section 3.3). The scope of DWER's clearing permit assessment under Part V of the EP Act is limited to the potential hydrological and water quality impacts resulting from the clearing of native vegetation. In addition to the above measures, a weed and dieback management condition is considered adequate to minimise the risk of degradation to the adjacent wetland vegetation. In considering the above, it is not considered likely that the proposed clearing will have a significant impact on the wetland vegetation surrounding the application area.

#### Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 6.21 hectares of wetland vegetation that is commensurate with a multiple use and a resource enhancement wetland. The clearing may result in indirect impacts to adjacent conservation category wetland vegetation within Lot 9500 on Deposited Plan 414516, Kerup however, the mitigation measures (maintenance of a 50 metre buffer) and management measures proposed by the applicant are considered adequate to manage the indirect impacts the clearing may have on the adjacent conservation category wetlands.

The clearing may also directly and indirectly impact water quality of the surrounding wetland, drainage lines and the downstream Serpentine river, through dispersal of sediment during the proposed clearing. The applicants proposed management and monitoring plans, as well as the condition of commencing works within three months of the date of clearing; which will prevent the prolonged exposure of bare sandy soils to be mobilised into surrounding watercourse, is considered adequate to manage these impacts.

#### Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- Dieback and weed control, which ensures protocols are put in place to limit the introduction and transportation of dieback- and weed-affected materials.
- Commence associated works within three (3) months of the authorised clearing being undertaken to reduce the mobilisation of sediment into the surrounding drainage channels and wetlands through wind erosion, by minimising the exposure time of soils prior to construction.

### **3.2.5 Land resources (land degradation) - Clearing Principles (g)**

#### Assessment

The application area is mapped within the Bassendean System and contains four soil units; Bassendean B1, B2, B3 and B4 phases. Of these four phases majority of the site is mapped as Bassendean B2 Phase, which contributes to 71.7 per cent of the application footprint (DPIRD, 2019). The vegetation proposed to be cleared is confined to the B2 and B4 phase soil types and are described as:

- Bassendean B2 Phase – flat to very gently undulating sandplains, with well to moderately well drained deep bleached grey sands, and a pale yellow B horizon or a weak iron-organic hardpan at 1-2 metres;
- Bassendean B4 Phase – broad poorly drained sandplains with deep grey siliceous sands or bleached sands, underlain at depths; generally greater than 1.5 m, by clay or less frequently a strong iron-organic hardpan.

Of the 6.21 hectares of vegetation to be cleared, 3.21 hectares is mapped within the Bassendean B2 Phase. This soil type is moderately susceptible to wind erosion and highly susceptible to water repellence and phosphorus export. The remaining three hectares proposed to be cleared is mapped as Bassendean B4 Phase which is highly susceptible to water logging, and phosphorus export, and moderately susceptible to wind erosion and water repellence.

Noting the current vegetation extent and the condition of the vegetation proposed to be cleared, it may result in enhance land degradation risks. However, impacts to land degradation resulting from the end land-use (i.e., the operation of the composting facility) are considered as part of the Works Approval. It is to be noted the applicant has provided an extensive Surface Water and Leachate Management Plan (Talis Consultants, 2023b), and a Ground Water Level Management Plan (FSG, 2023) to mitigate the water logging, phosphorus export and water repellence concerns.

#### Conclusion

Based on the above assessment, the proposed clearing is may to result in appreciable land degradation risks, however the applicant has demonstrated management measures to mitigate land degradation impacts from water logging, phosphorus export and water repellence. To minimise the risk of wind erosion, the applicant will be required to undertake construction works over the cleared areas within three months of the date of clearing, which will prevent the prolonged exposure of bare sandy soils.

#### Conditions

To address the above impacts, the following management measure will be required as conditions on the clearing permit:

- Commence associated works within three (3) months of the authorised clearing being undertaken to reduce the risk of land degradation in the form of wind erosion by minimising the exposure time of soils prior to construction.

### **3.3 Relevant planning instruments and other matters**

Other relevant authorisations required for the proposed clearing (and/or land use) include:

- Development approval under the *Planning and Development Act 2005* (issued by the Shire of Murray).
- Licence issued under Part V Division 3 of the EP Act.
- Permit to interfere with bed and banks under the *Rights in Water and Irrigation Act 1914*.
- Licence to abstract water under the *Rights in Water and Irrigation Act 1914*.

The Shire of Murray advised DWER that local government approvals are required, and that the proposed clearing is consistent with the Shire's Local Planning Scheme No.4.

In accordance with regulation 8 of the *Planning and Development (Development Assessment Panels) Regulation 2011*, the application for C-wise Holdings Pty Ltd's on Lot 9500 Gull Road for planning approval was granted on 6 June 2024.

The applicant advised they hold a valid Groundwater License (GWL166732(2)). A permit to interfere with bed and banks under the *Rights in Water and Irrigation Act 1914*, if required, should be obtained prior to the construction of the access road and installation of the culverts.

DWER's Industry Regulation Branch advised a works approval application had been applied for and as of 13 June 2024 the comments on the Draft approval had been provided to DWER. On 20 June 2024 DWER's Industry Regulation Branch confirmed the Draft instrument consisted of minor comments to be addressed and the final Works Approval Instrument will be granted in the near future. This was therefore considered sufficient evidence for the Clearing Permit to be granted prior to a final grant of the Works Approval Instrument.

Several Aboriginal sites of significance have been mapped 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.

## **4 End**

## Appendix A. Additional information provided by applicant

Request for information	Further information provided
<p>Evidence of further avoidance and mitigation for:</p> <ul style="list-style-type: none"> <li>clearing within an extensively cleared landscape</li> <li>Black cockatoo habitat</li> <li>Threatened and Priority flora</li> </ul>	<p><u>Extensively cleared landscape</u></p> <ul style="list-style-type: none"> <li>The applicant identified the site and design was selected to minimise the clearing as far as practicable and selected predominantly completely degraded and degraded areas of vegetation.</li> <li>The application area was also further modified to further reduce the overall clearing from 6.55 hectares to 6.21 hectares.</li> </ul> <p><u>Black cockatoo habitat</u></p> <ul style="list-style-type: none"> <li>The applicant advised that the <i>Eucalyptus marginata</i> woodland identified as potential breeding and foraging habitat will not be cleared and was excluded from the application area.</li> </ul>
<p>Evidence to avoid and mitigate the impact to the following wetland value:</p> <ul style="list-style-type: none"> <li>7.09 hectares of wetland systems within the clearing footprint. Including resource enhancement wetlands and multiple use wetlands.</li> <li>Increase the buffer between the application footprint and the conservation category wetland</li> </ul>	<p>The facility design was amended to ensure a 50 metre separation distance from the facility to the conservation category wetland, this buffer also acts as a firebreak between the wetland and the facility. A fence between the footprint and surrounding wetlands is to be constructed to reduce impacts to the surround wetlands.</p> <p>The applicant provided evidence of a Surface water and Leachate management plan as well as a Groundwater management plan. These plans outline mitigation measures to reduce the impacts to the surrounding wetlands and water courses.</p>
<p>Identification of satisfactory environmental offset if efforts to avoid and mitigate is insufficient.</p>	<p>The applicant proposes to revegetate areas which have been historically cleared within the sites by retaining the excavated topsoil to be respread accordingly.</p>
<p>Demonstrate C-Wise Holding Pty Ltd has been granted access to Lot 9500.</p>	<p>The applicant provided a copy of the signed lease confirming access to the property.</p>
<p>Evidence of stormwater management.</p>	<p>The applicant provided an extensive surface water and leachate management plan as well as groundwater level management. The key management measures include:</p> <ul style="list-style-type: none"> <li>Implementation of a best practice surface water management system in general accordance with the DWER's <i>Guideline: Better Practice Organics Recycling</i>.</li> <li>Constructing the processing areas such that stormwater run-off inflow is mitigated;</li> <li>Implementation of a drainage system across the site's operational areas that includes strategically located discharge points away from the processing and storage areas;</li> <li>Hardstands that are graded to ensure the capture of all stormwater run-off within the site's operational areas;</li> <li>Appropriate sizing of the surface water management system to manage a 1-in-20-year Annual Exceedance Probability (AEP), 24-hour duration storm event;</li> </ul>

Request for information	Further information provided
	<ul style="list-style-type: none"> <li>Establishment of controlled discharge points for surface water; and</li> <li>Use of culverts to maintain existing flow lines under the entrance road.</li> </ul>

## Appendix B. Site characteristics

### B 1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is 6.21 hectares within a clearing footprint of 44.6 hectares of native vegetation in the intensive land use zone of Western Australia. It is surrounded by existing cleared space for farming, residential area and located less than one kilometre from the existing composting facility. The proposed clearing area is several small, isolated patches of remnant in a highly cleared landscape and made up of and surrounded by various wetland systems.</p> <p>Aerial imagery and Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 25.48 per cent of the original native vegetation cover.</p>
Ecological linkage	The application area is not mapped with in an ecological linkage and given 87.8 per cent of the application area consists of bare ground the area does not contribute to local linkages.
Conservation areas	The application area is approximately 4.2 kilometres southeast of Rockingham Lakes Regional Park, 5.3 kilometres from the Black Lake Nature reserve and 5.9 kilometres from the Goegrup Lake Nature Reserve.
Vegetation description	<p>The Vegetation survey (PGV, 2022) provided indicates the vegetation within the proposed clearing area consists of five vegetation types:</p> <ul style="list-style-type: none"> <li>bare ground (87.81 per cent of application area)</li> <li><i>Kunzea glabrescens</i> Tall Open Scrub over <i>Astartea affinis</i> open heath (8.25 per cent of application area)</li> <li><i>Kunzea glabrescens</i> scattered shrubs (1.35 per cent of application area)</li> <li><i>Melaleuca preissiana</i> open to low open forest, over <i>Kunzea glabrescens</i> tall open shrubland over <i>Astartea affinis/Regelia ciliata</i> open heath over <i>Lepidosperma longitudinale</i> sedgeland (2.55 per cent of application area); and,</li> <li><i>Eucalyptus marginata</i> woodland, over <i>Xylomelum occidentale</i> low open woodland over <i>Hibbertia hypericoides</i> low shrubland (0.04 per cent of application area).</li> </ul> <p>The full survey descriptions and maps are available in Appendix E.</p> <p>This is inconsistent with the mapped vegetation type(s):</p> <ul style="list-style-type: none"> <li>Beard 44 (Bassendean Complex Central and South, which is described as Vegetation ranges from woodland of <i>Eucalyptus marginata</i> (Jarrah) - <i>Allocasuarina fraseriana</i> (Sheoak) - Banksia species to low woodland of <i>Melaleuca</i> species, and sedgelands on the moister sites. This area includes the transition of <i>Eucalyptus marginata</i> (Jarrah) to <i>Eucalyptus todtiana</i> (Pricklybark) in the vicinity of Perth. (Shepherd et al, 2001)</li> </ul> <p><i>The mapped vegetation type retain approximately 25.48 per cent of the original extent (Government of Western Australia, 2019).</i></p>
Vegetation condition	The vegetation survey (PGV,2022) indicate the vegetation within the proposed clearing area is in completely degraded to good condition (Keighery, 1994) condition, described as:



Characteristic	Details
	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Degraded - Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management.</li> <li>• Good - Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it.</li> </ul> <p>The full Keighery (1994) condition rating scale is provided in Appendix D. The full survey descriptions and mapping are available in Appendix E.</p>
Climate and landform	<p>The annual rainfall of the region is 610.7 millimetres.</p> <p>The application area mostly flat and is situated at an elevation area of approximately 20 meters.</p>
Soil description	<p>The soil of the application area is mapped at three Bassendean Phases:</p> <p>Bassendean B1 phase (Map unit: 212Bs_B1): Deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m.</p> <p>Bassendean B2 phase (Map unit: 212Bs_B2): Deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 m.</p> <p>Bassendean B4 phase (Map unit: 212Bs_B4): "Deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 meters by clay or less frequently a strong iron-organic hardpan".</p>
Land degradation risk	<p>The application area is subject to several land degradation risks including:</p> <ul style="list-style-type: none"> <li>• low to moderate risk of water erosion,</li> <li>• high risk of water logging,</li> <li>• moderate to high risk of water repellence; and,</li> <li>• high risk of phosphorus export</li> </ul> <p>The full land degradation risk table is provided in Appendix B4.</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that the Serpentine river located 2.94 kilometres to the east of the application area. This section of the river consists of two pools the Gunanup Pool and Yalbanberup Pool.</p> <p>Mapping has also identified a number of geomorphic wetlands of the swan coastal plain occur within and adjacent to the application area including:</p> <ul style="list-style-type: none"> <li>• conservation category wetland</li> <li>• resource enhancement wetland</li> <li>• multiple use wetland</li> </ul> <p>At the north end of the application footprint is a man-made drainage line which intersects the application footprint running from east to west.</p> <p>At the southern end adjacent to the footprint is a second man-made drainage line, however this line does not intersect the clearing footprint.</p>
Hydrogeography	<p>The application area is situated within the Murray groundwater Area and Serpentine River System Surface Water Area as proclaimed under the <i>Rights in water and irrigation Act 1914</i>. Groundwater salinity ranges between 500 – 3000 milligrams per litre total dissolved solids.</p>
Flora	<p>Within the local area 25 flora species have been recorded with the nearest recorded located 0.38 kilometres from the application area. The local area comprises of three threatened flora species, 2 priority 1 (P1) species, four P2, 10 P3 species and six P4 species.</p>
Ecological communities	<p>Within the local area the area six mapped TEC's including:</p> <ul style="list-style-type: none"> <li>• Banksia woodlands of the Swan Coastal Plain – within the application area</li> <li>• Clay Pans of the Swan Coastal Plain – Herb rich shrublands SCP08 – 8.1 kilometres from application area</li> </ul>

Characteristic	Details
	<ul style="list-style-type: none"> <li>• Sedgeland in Holocene dunes of the Southern Swan Coastal Plain (type 19) – 9.6 kilometres from the application area</li> <li>• Subtropical and temperate coastal saltmarsh – 5.9 kilometres from the application area</li> <li>• Tuart woodlands and forests of the Swan Coastal Plain – 9.2 kilometres from the application area</li> <li>• Woodlands over Sedgeland in Holocene dune swales of the southern Swan Coastal Plain (type 19) – 8.2 kilometres from the application area.</li> </ul> <p>The local area also consists of three PEC's including:</p> <ul style="list-style-type: none"> <li>• Coastal shrublands on shallow sands – 6.6 kilometres from the application area</li> <li>• Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain type 15 – 5.8 kilometres from the application area</li> <li>• Northern Spearwood shrublands and woodlands 6.6 kilometres from the application area.</li> </ul>
Fauna	<p>Available databases indicate 30 conservation significant fauna have been recorded within the local area comprising of three priority 3, five priority 4, 10 migratory species, one conservation dependent (CD), two critically endangered (CR), four endangered (EN), one other specially protected (OS) and three vulnerable (VU). The closest fauna record was mapped 1.08 kilometres from the application area.</p>

**B 2. 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	14.85
Vegetation complex					
Bassendean Complex-Central and South (44)*	87,476.26	23,508.66	26.87	4,377.36	5.00
Local area					
10km radius	35,036.43	8,928.16	25.48	-	-

\*Government of Western Australia (2019a)

**B 3. Fauna analysis table**

Species name	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]
<i>Calyptorhynchus banksii naso</i>	VU	Y	N	3.750677	101	Y
<i>Dasyurus geoffroi</i>	VU	Y	Y	4.109867	7	Y
<i>Isoodon fusciventer</i>	P4	Y	Y	2.784927	468	Y
<i>Zanda baudinii</i>	EN	Y	N	8.298374	1	Y
<i>Zanda latirostris</i>	EN	Y	Y	3.596147	348	Y

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

**B 4. Land degradation risk table**

Risk categories	Mapped soil type			
	Bassendean B1 phase (212Bs_B1)	Bassendean B2 phase (212Bs_B2)	Bassendean B3 phase (212Bs_B3)	Bassendean B4 phase (212Bs_B4)
<b>Wind erosion</b>	M2 -52% of map unit has high to extreme hazard	M2 -40% of map unit has high to extreme hazard	L2- 5% of map unit has high to extreme hazard	M1 -15% of map unit has high to extreme hazard
<b>Water erosion</b>	Nil	Nil	M2 -40% of map unit has high to extreme hazard	Nil
<b>Water logging</b>	L2 - 10% of map unit has moderate to very high risk	L2- 5% of map unit has moderate to very high hazard	H2- 91% of mapped unit has moderate to very high risk	H2- 95% of the map unit has moderate to very high risk
<b>Water Repellence</b>	H2 -93% of the map unit has a high susceptibility	H2-100% of map unit has a high susceptibility	M1-15% of the map unit has a high susceptibility	M1-95% of the map unit has moderate to very high risk
<b>Subsurface Acidification</b>	Nil	Nil	Nil	Nil
<b>Phosphorus export risk</b>	H2-83% of map unit has a high to extreme hazard	H2-90% of map unit has high to extreme hazard	H2-97% of map unit has high to extreme hazard	H2-93% of map unit has high to extreme hazard
<b>Percentage of application footprint</b>	17.81	71.70%	0.30%	10.51%

## Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not provide significant habitat for conservation significant fauna and flora species, or ecological communities.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, and 3.2.2 above.</i>
<p><u>Principle (b):</u> “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.”</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain significant habitat for conservation significant fauna.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> “Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared may provide suitable habitat for a flora species listed under the BC Act, however any impacts are not likely to be significant.</p>	May be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<p><u>Principle (d):</u> “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.”</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain species that can indicate a threatened ecological community.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.2, above.</i>
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<p><u>Principle (e):</u> “Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type and native vegetation in the local area is inconsistent with the national objectives and targets for biodiversity conservation in Australia.</p> <p>The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area, nor provide significant habitat for conservation significant flora and, fauna species, or represent any significant ecological communities.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (h):</u> “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.”</p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
<b>Environmental value: land and water resources</b>		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f)</u>: <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment</u>:</p> <p>Given watercourses and wetlands are recorded within application area, the vegetation within the application area is considered to be growing in association with a wetland and a watercourse.</p>	At variance	Yes  <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (g)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment</u>:</p> <p>The mapped soils moderately susceptible to wind erosion and water logging, highly susceptible to water repellence and highly susceptible to phosphorus export. Noting the location of the application area and the condition of the vegetation the proposed clearing is likely to have an appreciable impact on land degradation, however management measures proposed by the applicant will mitigate these impacts.</p>	May be at variance	Yes  <i>Refer to Section 3.2.5, above.</i>
<p><u>Principle (i)</u>: <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.”</i></p> <p><u>Assessment</u>:</p> <p>The proposed clearing area is situated within a palusplain wetland, and the Murray Groundwater Area and Serpentine River System Surface Water Area, as proclaimed under the <i>Rights in Water and Irrigation Act 1914</i>. Noting the purpose and extent of the clearing, it is possible to impact surface or ground water quality.</p>	May be at variance	Yes  <i>Refer to Section 3.2.4, above.</i>
<p><u>Principle (j)</u>: <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment</u>:</p> <p>The application area is mapped within a wetland and adjacent to nearby watercourses, however noting the topographic contours the soil types and the current extent and condition of the vegetation the clearing is unlikely to result in exacerbated incidences or intensity of flooding. The applicant will implement surface water management plan to manage surface water.</p>	Not likely to be at variance	No

**Appendix D. 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 South West 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.
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 E. Supporting Document Excerpts****E.1. Biological survey****Flora, vegetation and fauna survey (PGV Environmental , 2022)**




PGV Environmental (PGV) were commissioned by DevelopmentWA and the Peel Development Commission to undertake a flora and vegetation survey and a basic fauna survey to assist in understanding the environmental constraints of the development of Lot 9500. The results from this survey were used as supporting evidence for C-Wise Holdings Pty Ltd's clearing permit application.

Flora and vegetation survey

A detailed spring flora and vegetation survey was conducted on October 5, 14-15 and November 11 2021 by a qualified botanist. The survey occurred mostly on foot as well as with quadrat sampling.

A total of 127 plant species were recorded from the site including 86 native species and 41 introduced species. Species richness in the 27 quadrats were very low, ranging from 7-21 with an average of 7.1 native species per quadrat. This low number of native species is indicative of the wetland vegetation types and high degree of disturbance over most of the site. Due to the low species richness of the quadrat data, floristic community types unable to be determined. PGV compared the data collected in the field with Coffey Environmental study (2010) and confirmed three floristic community types occur across the site, none of which are consistent with the floristic communities of a threatened or priority ecological community. The vegetation type descriptions associated with the application area and condition mapping are provided in Table 1 and Figures 1 and 2. The desktop assessment identified 26 threatened and priority flora species to have the potential to occur, however no threatened or priority flora species were identified on Lot 9500 during the survey. The condition of the vegetation over the whole site varied from completely degraded to excellent condition. Figure 3 shows the condition of the application area to vary from completely degraded to good condition. The vegetation mapping undertaken for this survey confirms that most of the vegetation on the site is wetland vegetation, these wetlands are summarised in table 2.

**Table 1: Summary of vegetation types within the application footprint**

Vegetation Type	Description	Photograph
<b>KgAa</b> <i>Kunzea glabrescens</i> Tall Open Scrub over <i>Astartea affinis</i> Open Heath	A common vegetation type in the low-lying eastern parts of the site. <i>Kunzea glabrescens</i> is sparse to moderately dense (10-50%) and up to 5m high. <i>Astartea affinis</i> is often present as is <i>Juncus pallidus</i> Quadrats K7, 20, 21 and 23 are representative of this vegetation type	
<b>Kg</b> <i>Kunzea glabrescens</i> Scattered Shrubs	<i>Kunzea glabrescens</i> shrubs occur at low-moderate density in some areas that were previously cleared (but not blue gum plantation). <i>Jacksonia furcellata</i> and <i>Adenanthos cygnorum</i> (Woolly Bush) shrubs are also common. Few native species are regenerating in the ground cover which is mostly introduced grasses, Capeweed ( <i>Arctotheca calendula</i> ) and Pigface ( <i>Carpobrotus edulis</i> ) on the eastern dry sandy soils and pasture species in the western low-lying areas.	
<b>Bare</b>	The bare areas mapped on the eastern part of the site mostly occur on slightly elevated sandy dunes. The sandy soils are often covered with the native annual <i>Podotrochea gnaphalioides</i> as well as introduced grass species, Capeweed ( <i>Arctotheca calendula</i> ) and Pigface ( <i>Carpobrotus edulis</i> ). Occasional <i>Kunzea glabrescens</i> shrubs occur in these areas. The bare areas on the western part of the site contain pasture grasses on low-lying loamy sands.	

**Table 2: Summary of the geomorphic wetland assessment present within the lot**

Wetland ID	Wetland Type	Management Category	Vegetation Condition	Comment
16021	Palusplain	Multiple Use	Large wetland Mostly Degraded to Completely Degraded	MU category appropriate
14702	Palusplain	Multiple Use	Degraded	MU category appropriate
14700	Dampland	Resource Enhancement	Excellent	Upgrade to CCW
15852	Palusplain	Resource Enhancement	Mostly Degraded to Good	Borderline RE/MU
15849	Sumpland	Resource Enhancement	Degraded to Good, but large area of inundation	RE appropriate
15853	Palusplain	Resource Enhancement	Large wetland, Completely Degraded to Good with some G-VG	RE appropriate apart from old Bluegum plantation areas
15854	Palusplain	Resource Enhancement	Excellent to Very Good	Upgrade to CCW
14654	Sumpland	Conservation	Very Good to Good	CCW appropriate
15856	Palusplain	Conservation	Very Good to Degraded	Borderline CCW/RE
15857	Palusplain	Conservation	Very Good to Good	CCW appropriate
14698	Palusplain	Conservation	Excellent	CCW appropriate, could be extended further south
15858	Palusplain	Conservation	Excellent	CCW appropriate
15860	Sumpland	Conservation	Good	Reclassify to REW

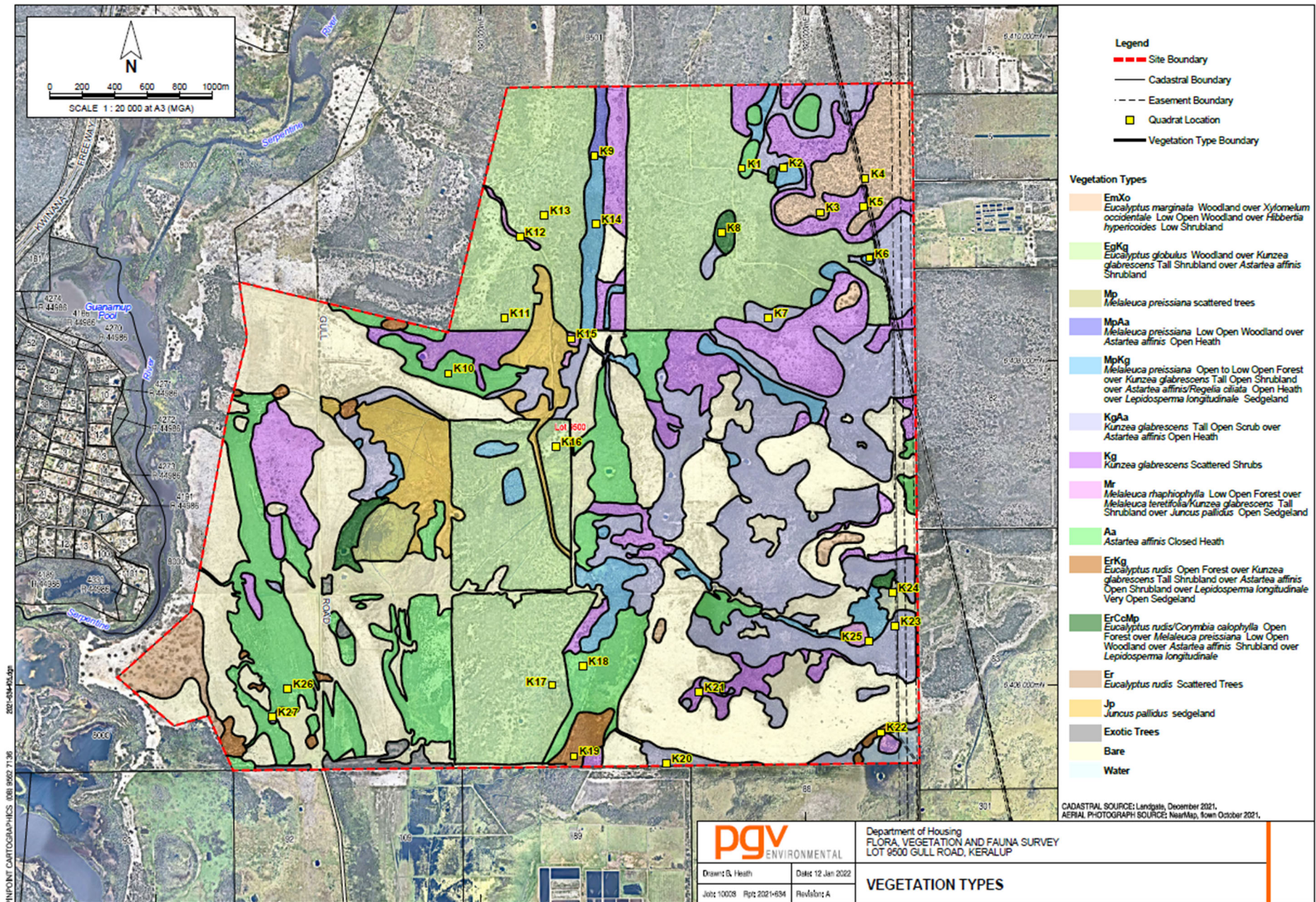


Figure 3: Vegetation Types of Lot 9500



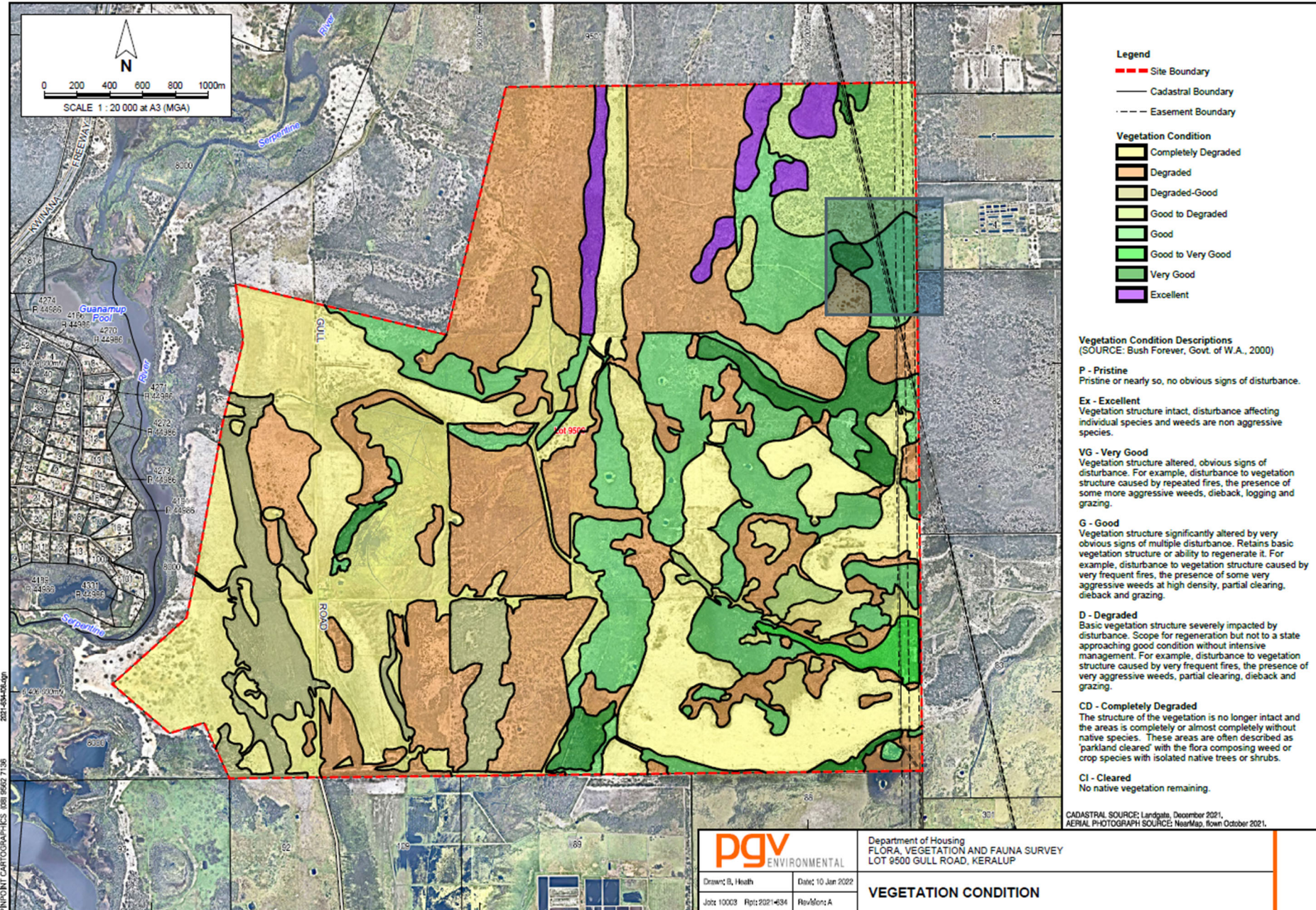





Figure 4: Vegetation condition of Lot 9500




### Fauna survey

The Basic 1 Fauna Survey was undertaken in accordance with EPA Technical Guidance *Fauna Surveys for Environmental Impact Assessment* (EPA, 2016b). Desktop studies were undertaken to identify habitats and potential threatened species that may occur on the site. The desktop study identified Baudin's Black Cockatoos, Carnaby's Black Cockatoos and Forest Red-tailed Black-Cockatoo are known to frequent the area. Foraging habitat on the site is limited to those areas that have Jarrah and Marri trees. The site contains a large number (100-200) of potentially suitable breeding habitat trees (mostly Marri) that are over 50cm DBH. The Coffey Environments study (2008), identified in the desktop assessment did not trap or observe any EPBC conservation significant mammal species during the fauna survey. The Cattle Egret (*Ardea ibis*) and Rainbow Bee-eater (*Merops ornatus*), are known to utilise some sections of the site as part of a much larger home range and the Priority 4 Quenda was trapped in a number of locations across the wider Keralup landholding. PGV Environmental's opinion is that Quenda would be distributed across Lot 9500. The site also shows signs of rabbits and feral cats, with foxes, mice and rats are likely to be present. An assessment of the fauna habitats on the site was conducted by PGV Environmental during the field survey conducted from October to November 2021.

Six fauna habitats were described on the site as listed in table 3.

**Table 3: Fauna habitat types within Lot 9500**

Fauna Habitat types	Habitat		
	Soils	Vegetation	Photographs
Open paddock with <i>Juncus pallidus</i> (Plate 5)	Sandy clay	<i>Juncus pallidus</i> in paddock with occasional <i>Astartea affinis</i> , often on edge of wetland area	
Paddock with mixed shrubland (Plate 6)	Sandy	Mixed shrubland up to 3m dominated by <i>Astartea affinis</i> , some of which is regrowth	
Remnant woodland on sand (Plate 7)	Sandy	Open woodland with Jarrah, Marri woodland with a dry understorey	

Remnant woodland with dense wetland understorey (Plate 8)	Loamy and moist/peat	Woodland comprising moist, dense understorey with Flooded Gums, Marri trees or some <i>Melaleuca preissiana</i>	
Melaleuca and remnant woodland with wetland understorey (Plate 9)	Loamy and moist/peat	Woodland dominated by <i>Melaleuca</i> and Flooded Gums, with moist, dense understorey	
Open Water Habitat (Plate 10)	Inundated	Emergent <i>Melaleuca raphiophylla</i> in water	

**E.2. Talis Consultants Supporting Document**

**Clearing Permit Application Supporting Document (Talis Consultants, 2023a)**

**Wetlands**

Most of the mapped wetlands surrounding the site are classified as Multiple Use Wetlands. There are small portions of Multiple Use Wetlands within the northwest and southeast corners of the site. A portion of two unnamed palusplain Conservation Category Wetlands are located on the western and southern boundaries of the Site, as shown in Figure 5. An unnamed sumpland wetland is located in the southeast corner. Excluding the small sections of Multiple Use Wetlands and cleared pasture areas where the facility infrastructure is to be located, most of the remainder of the Site is categorised as Resource Enhancement Wetlands. A review of the mapped wetlands within and surrounding the Site was completed by the Department of Biodiversity, Conservation and Attractions (DBCA) in 2021 to ensure that the wetland evaluation accurately reflects the mapped extent of the wetlands. As a result of the review, manual changes have been applied to the dataset internally, however these changes have not yet been applied to the publicly available data. The extent of the Conservation Category Wetlands within and surrounding the site was altered following the DBCA’s review, with the changes outlined in Table 4. Both the original and updated wetland mapping has been considered in the development of the project and in the preparation of this Clearing Permit application. The facility has been positioned and designed to ensure a minimum 50 metre separation distance between infrastructure and the mapped Conservation Category Wetlands, as well as to minimise impacts to nearby Resource Enhancement and Multiple Use Wetlands following clearing. Most infrastructure will be located at least 100m from the mapped wetlands with the exception of access roads and stormwater and leachate management infrastructure, which will be located at least 50m from wetlands. This ensures that no clearing of vegetation within the Conservation Category Wetlands will occur and that clearing of vegetation within Resource Enhancement Wetlands is minimised as far as practicable.

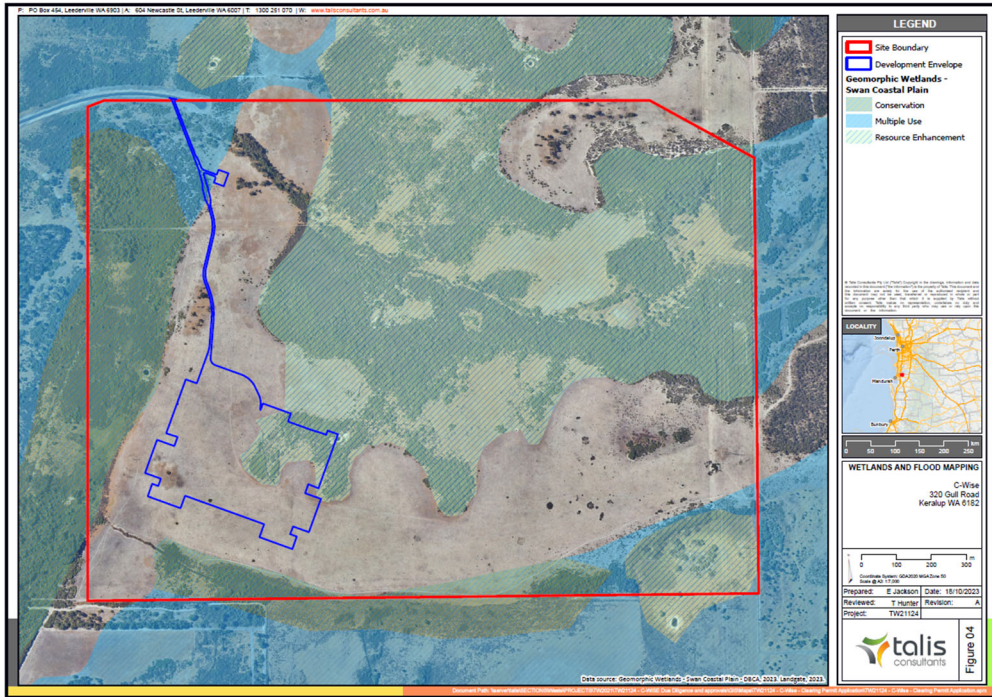


Figure 5: Wetlands associated with the site boundary


**Summary of the EAST Keralup Wetland Evaluation**

The Draft WESCP dataset was created by applying a spatial multi criteria evaluation (MCE) model to attribute a number value to wetland polygons using an aggregation of known mapped environmental values. The range of these values was then analysed to attribute wetlands in number ranges to the wetland evaluation categories; Conservation (CCW), Resource Enhancement/Requires Evaluation (REW) and Multiple Use (MUW). Due to the varied and intensive past land uses at the East Keralup site, the area has required considerable survey and desktop validation to ensure that the wetland evaluations accurately reflect values on the ground.

The following codes are used in the tables below:

- UID = Unique Identification Number
- MCE= Multi-Criteria Evaluation – it is the score attributed to the polygon but the model
- CCW= Conservation Category Wetland, REW = Requires evaluation/Resource Enhancement Wetland
- MUW= Multiple Use Wetland
- FV = Focused Vision Mapping,
- VG = Very Good, G= Good, D=Degraded, CD = Completely Degraded,
- NVL = DPIRD Native Vegetation Layer

Table 4:Wetland evaluation associated with Clearing footprint

UID	V2 Eval (MCE)	Screen Shot of dataset	Reasoning	Final Evaluation categories/changes
3905_7359	REW (0.363789)		FV mapping D to CD. Aerial imagery and site visit indicate variable condition with clear portions on either side. Separated into 3 portions, Cleared areas have been removed from the polygon and assigned MUW, remainder to stay REW.	MUW and REW

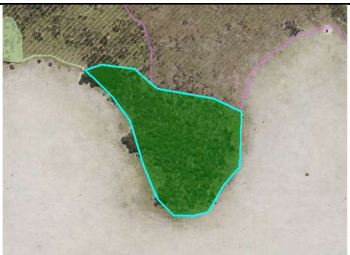

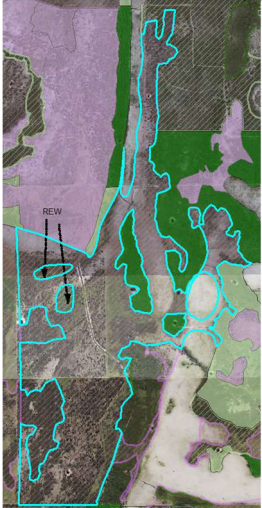
3905_7355	REW		FV mapping – approx.. 90% good	CCW
3905_7367	REW (ME from CCW V1.3 – 0.542907)		FV mapping G, VG and degraded. The G and better section at south and north were separated and attributed CCW. The rest D and CD changed to MUW. There were some boundary changes into the adjoining UID 3905_7368.	CCW and MUW
3905_7368	REW (0.410831)		Part of a large UID. some boundary changes. Justified in UID 3905_7368. Also 2 areas of likely melaleuca overstorey identified from aerial imagery. Separated as REW	MUW and REW

Table 5: Summary of Environmental Attributes

Aspects	Findings
Climate	Dry summers and mild, wet winters with most rainfall occurring between June and August. The average annual rainfall is 746.1mm.
Wetlands	Two Conservation Category Wetlands are located on the western and southern boundaries of the Site. Small sections of Multiple Use Wetlands are located within the northwestern and southeastern corners of the Site. Excluding the cleared pasture areas, the remainder of the Site is classified as Resource Enhancement Wetlands. Most infrastructure will be located at least 100m from Conservation Category Wetlands with the exception of access roads and stormwater and leachate management infrastructure, which will be located at least 50m from these wetlands. Part of the Development Footprint is located within Resource Enhancement wetlands, and a small portion of the access to the Site will be through a Multiple Use Wetland.
Watercourses	The Serpentine River is located approximately 3km west of the Site and two minor watercourses are located 0.75km to the north west and 1.25km to the east, respectively. The nearest floodplain is located around the minor watercourse 0.75km east of the Site.
Water Resources	The nearest public drinking water source to the Site is the North Dandalup Dam Catchment Area, located approximately 15km to the east.
Groundwater	Groundwater at the Site flows in a westerly direction towards the Serpentine River and is limited by a partial aquitard, resulting in extended periods of waterlogging during the winter

	months. The recorded depth to groundwater ranges from 1.9mbgl to 2.8mbgl and groundwater at the Site is noted to be fresh and acidic, with a pH ranging from 3.73 to 4.5.
Vegetation Condition	While the vegetation condition at the Site ranges from Completely Degraded to Very Good, the vegetation within the Clearing Area is classified as Completely Degraded to Good: 1.27ha, or 19.33% of the vegetation to be cleared, is classified as Completely Degraded; 3.65ha, or 55.74% of the vegetation to be cleared, is classified as Degraded; 0.02ha, or 0.25% of the vegetation to be cleared, is classified as Degraded to Good; and 1.62ha, or 24.68% of the vegetation to be cleared, is classified as Good.
Dieback	Dieback is not known to occur at the Site, however a portion of land directly to the northeast is mapped as having a moderate confidence of being infested.
Conservation significant flora	There are no Threatened or Priority Flora species within the Site, with the nearest recorded species located 300m to the west.
Threatened Ecological Communities	Banksia Woodlands of the Swan Coastal Plain/Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region are mapped as occurring at the Site, however no Banksia trees are present at the Site.
Conservation Reserves	The Conservation Category Wetlands located to the west and south of the Site are classified as Environmentally Sensitive Areas and the Site is located within the Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1992 area. The Conservation Category Wetlands are not within the Development Footprint.
Fauna	No Threatened or Priority fauna species have been recorded within the Site. The nearest record of a Threatened or Priority fauna species is 2km to the south southwest of the Site.
Geology and Soils	The Site consists of four soil landscape units (Bassendean B1 to B4 Phases) and surface geology is classified as predominantly Qdcb – dune quartz sand with heavy mineral concentrations and local basal conglomerate. The Development Footprint lies primarily over Bassendean B1 and B2 Phase soils, as well as a small portion of B4 Phase soil. No infrastructure is located within B3 Phase soils.
Contaminated Sites	The Site is not classified as a contaminated site. The nearest contaminated site is C-Wise's existing Nambelup facility, located directly south of the Site (DWER,2023) .
Acid Sulfate Soils	The Development Footprint and the majority of the Site is located in an area with a moderate to low risk of ASS and groundwater samples taken from wells at the Site in 2021 indicated exceedances in ASS parameters. Given this, an ASS investigation will be undertaken and an ASSMP prepared prior to the commencement of any clearing or construction activities at the Site.
Aboriginal Cultural Heritage	There are no known or registered sites within the Site, with the nearest registered site (3582) located approximately 2.3km to the west.

## Appendix F. Sources of information

### F.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- 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)

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