



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS

Area Permit Number: CPS 9955/1
File Number: DWERVT11407
Duration of Permit: From 14 April 2023 to 14 April 2025

PERMIT HOLDER

City of Mandurah

LAND ON WHICH CLEARING IS TO BE DONE

Lot 2197 on Deposited Plan 220548, Dawesville

AUTHORISED ACTIVITY

The permit holder must not clear more than 0.36 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

CONDITIONS

1. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 14 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 construction of additional parking and boat storage activities no later than two (2) 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	<ul style="list-style-type: none"> (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 construction of additional parking and boat storage 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 <i>weeds</i> and

No.	Relevant matter	Specifications
		<i>dieback</i> in accordance with condition 3.

7. Reporting

The permit holder must provide to the *CEO* the records required under condition 6 of this permit when requested by the *CEO*.

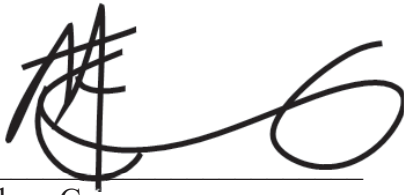
DEFINITIONS

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 <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"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; 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

A handwritten signature in black ink, appearing to be 'Mathew Gannaway', written over a horizontal line.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

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

21 March 2023

SCHEDULE 1

The boundary of the area authorised to be cleared is shown in the map below (

CPS 9955/1



Figure 1).

CPS 9955/1



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



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9955/1
Permit type:	Area permit
Applicant name:	City of Mandurah
Application received:	14 November 2022
Application area:	0.36 hectares of native vegetation
Purpose of clearing:	To create additional parking and boat storage
Method of clearing:	Mechanical
Property:	Lot 2197 on Deposited Plan 220548
Location (LGA area/s):	City of Mandurah
Localities (suburb/s):	Dawesville

1.2. Description of clearing activities

The area proposed to be cleared is 0.36-hectares of native vegetation distributed between two areas in the intensive land use zone of Western Australia. The two areas comprise one large clearing area and an additional single tree (see Figures 1 and 2, Section 1.5).. The proposed clearing will help facilitate the creation of additional parking and boat storage for the recreational club.

1.3. Decision on application

Decision:	Granted
Decision date:	21 March 2023
Decision area:	0.36 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.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also considered the proposed clearing is occurring on reclaimed land as a part of the Peel-Harvey estuary channel construction.

The assessment identified that the proposed clearing may result in:

- The loss of native riparian vegetation
- Introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values

- Land degradation in the form of wind erosion and water erosion
- Displacement of the *Isoodon fusciventer* (Quenda, Southwestern brown bandicoot)
- Nutrient runoff into surrounding wetlands.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined 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
- Undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity
- Works to commence within two months after undertaking the authorised clearing activities to reduce the potential for wind erosion
- Take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback

1.5. Site maps

CPS 9955/1

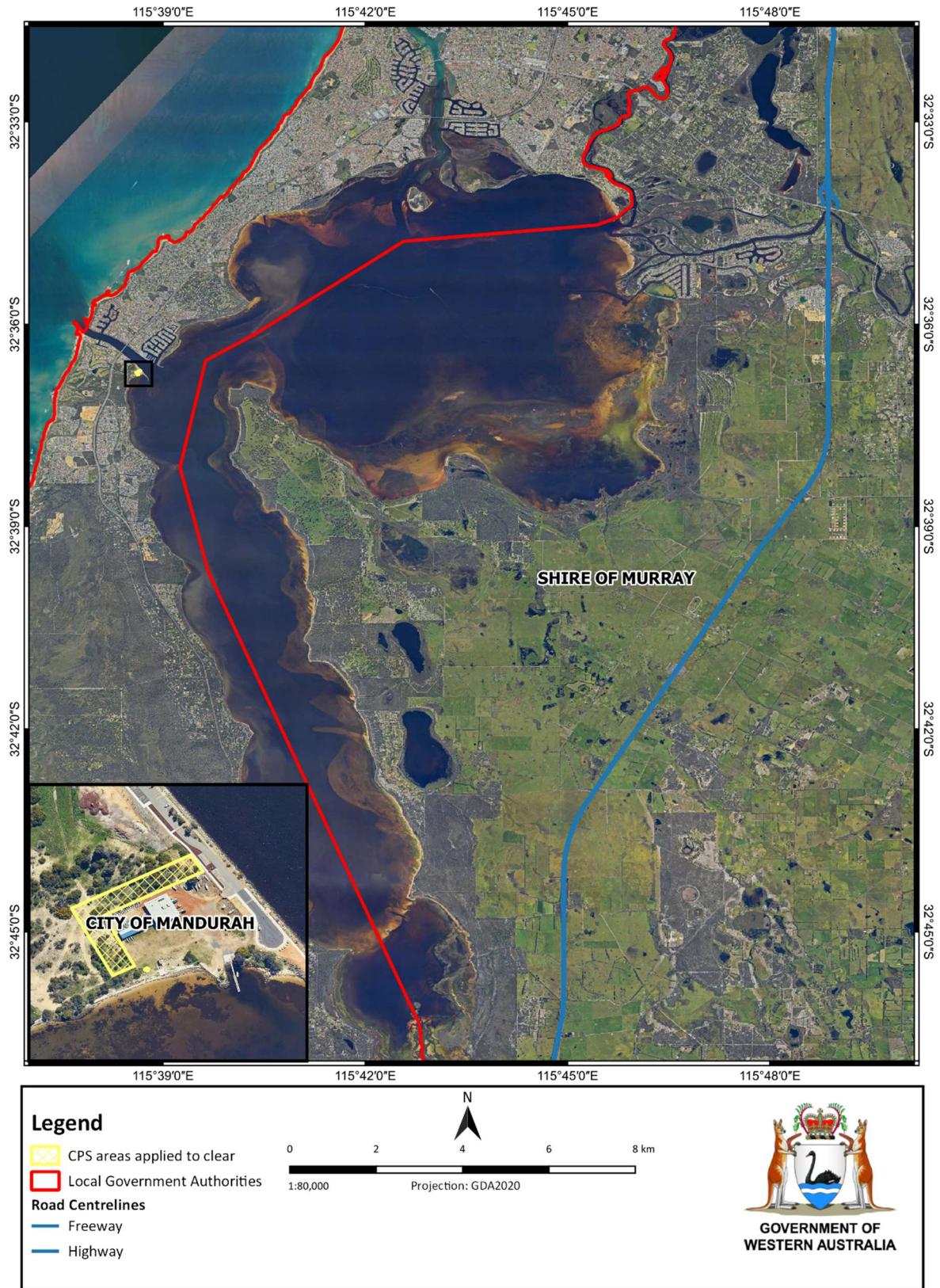


Figure 1. Map of the application area CPS 9955/1. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit .

CPS 9955/1

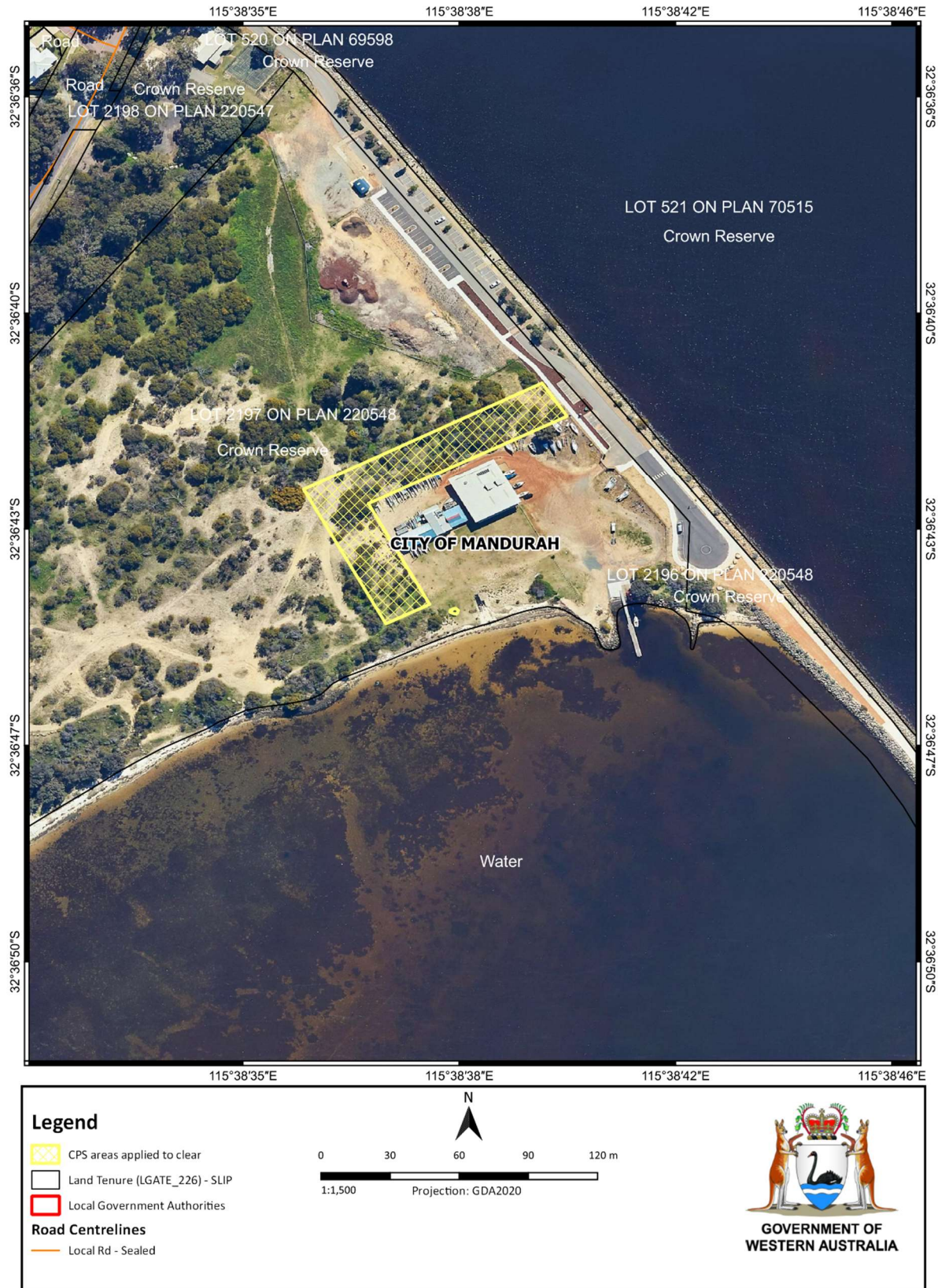


Figure 2. Map of the application area CPS 9955/1. The areas cross-hatched yellow indicate the areas authorised to be cleared under the granted clearing permit.

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 area proposed to be cleared is limited to what is needed to provide additional parking and storage. The shape proposed to be cleared was designed to avoid mature *Eucalyptus gomphocephala* (Tuart trees) in the northern area of the yacht club to ensure as little natural vegetation was cleared (City of Mandurah, 2022).

The Delegated Officer was satisfied that the applicant had 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 and 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 (significant habitat for fauna) - Clearing Principle (b)

Assessment

The application area is located within the Swan Coastal Plain IBRA region. According to the supporting information with the application, the vegetation proposed to be cleared appears to be in good to degraded condition (Keighery, 1994).

According to available databases, 45 conservation-significant fauna species have been recorded within the local area (10-kilometre radius). Five of these have been recorded within similar soil and vegetation types to the application area.

Noting the habitat requirements of the recorded species, proximity to application site and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for the following species:

- *Neelaps calonotos* (Black-striped snake, black striped burrowing snake)
- *Isoodon fusciventer* (Quenda, Southwestern brown bandicoot)
- *Idiosoma sigillatum* (swan Coastal Plain shield-backed trapdoor spider)
- *Pseudocheirus occidentalis* (Western ringtail possum, ngwayir)

Black-striped burrowing snake (P3)

The Black-striped burrowing snake has been recorded in dunes, 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 4.0 kilometres south of the application area. The species is nocturnal, staying in loose sand during the day and preying exclusively on small fossorial skinks (Shine, 1984). This species is rarely found in fragmented, cleared areas susceptible to weed infestation, such as those within the proposed clearing areas, because weeds are known to have an adverse effect on the composition of microhabitats required by fossorial species (Maryan *et al.*, 2015). The black-striped snake may cross the application area as it moves from one habitat to another. The vegetation being cleared is not considered to comprise significant habitat for the Black-striped burrowing snake .

Quenda (P3)

In their natural habitat, Quenda's live in dense understories in swampland areas, Banksia and Jarrah (*Eucalyptus marginata*) woodlands. However, Quendas have adapted to urban and suburban habitats in recent years (Department of Biodiversity, Conservation and Attractions (DBCAs), 2018). With the closest Quenda on record being 0.63 kilometres from the application area, Quenda can likely be found along the application area during dusk and dawn as they are a crepuscular species. Given the footprint of the clearing proposed, and the amount of remnant native vegetation immediately adjacent, the application area is not considered significant habitat for Quenda.

Swan Coastal Plain shield-backed trapdoor spider (P3)

The application area may provide suitable habitat for the *Idiosoma sigillatum* (Swan Coastal Plain shield-backed trapdoor spider (SCPSBT)). Significant habitat to the SCPSBT's survival is described as open forest remnant vegetation. Microhabitats for the healthy survival of the species are attached to the presence of Sheak (*Allocasuarina spp.*), which the species uses to construct their burrows (Mason *et al.*, 2018). Sheak was not recorded within the application area based on site photographs (Appendix D). However, the application area is a debatably suitable habitat for SCPSBT spiderlings, predominantly creating habitats within veldt grass (Mason *et al.*, 2018). Two species of veldt grass are recorded within the application area (*Ehrharta calycina* and *Ehrharta longiflora*) (Appendix D). Unfortunately, Veldt grass is an ecological trap that hinders the survival rate of SCPSBT through the loss of ecosystem function around the area it grows. Thus the spiderlings lose sustainable food recourses (Mason *et al.*, 2018). The SCPSBT are highly defensive of their burrows and, if moved, will have a lower survival rate due to their species affiliation with remaining in the same area for life and being vulnerable to predation when not in a burrow (Mason *et al.*, 2018). Given the small footprint of the application area and the habitat not being suitable for the longevity of the SCPSBT survival, it is unlikely that the clearing will significantly affect any SCPSBT populations within the application area.

Western ringtail possum (CR)

Significant habitat to *Pseudocheirus occidentalis* (Western ringtail possum) WRP survival is described as long unburnt mature remnants of Peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients. Other habitats comprise Jarrah (*Eucalyptus marginata*) and Marri (*Corymbia calophylla*) forests and woodlands with adequate hollows (Department of Parks and Wildlife, 2014). Western ringtail possum is active between dusk and dawn and typically avoids moving over bare ground, foraging almost exclusively within tree canopies. Nesting typically occurs in hollows of large trees being with hollows being between 2.4-5.5 centimetres in diameter (Rhind, 1996). Given the habitat requirements, the application area does not provide suitable habitat for the Western ringtail possum. There are no mature Peppermint trees, vegetation along the application area is sparse, and there are no large trees in the application area that contain hollows. The proposed clearing is unlikely to impact any significant habitat for the Western ringtail possum.

Conclusion: Given the extent of clearing 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 the surrounding fauna habitat by facilitating the spread of weeds and dieback.

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

- 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 habitats ahead of the clearing activity.

3.2.2. land and water resources (Environment associated with a watercourse or wetland) - Clearing Principle (f)

Assessment:

The Peel-Harvey estuary suffered an ecological collapse in the 1980s as a consequence of nutrient pollution, leading to the intervention of cutting a permanent channel from the ocean to the estuary known as the Dawesville cut, essentially resetting the ecosystem. Although this solution did help, large tracts of estuarine wetland habitat were lost in the development of the channel and surrounding urban expansion. The estuary is still known to have difficulties processing and removing nutrients (Government of Western Australia, 2020). According to the Peel-Harvey Estuary Protection Plan (2020), the surrounding location (Harvey central) water quality has recovered since the 1980s, meeting all desired nitrogen, phosphorus, dissolved oxygen, and chlorophyll projections which suggests good water quality for Harvey central.

The removal of native vegetation may destabilise the soil and increase the amount of nutrients available to enter the estuary, negatively impacting the surrounding estuary water quality. However, due to the small size of the application area, the amount of nutrient runoff and issues with water quality are likely to be minimal and short-term. Additionally, a small vegetation buffer remains between the proposed clearing and the Peel-Harvey estuary that is required by the Government of Western Australia roads near sensitive water resources (Government of Western Australia 2006). This small vegetation buffer will help filter runoff nutrients that may come as a result of the clearing.

Conclusion: Based on the above assessment, the proposed clearing has the potential for minor, short-term effects on the surrounding wetland. As there remains a buffer between the clearing application and the Peel-Harvey estuary, the impacts of nutrient runoff will likely be mitigated.

Conditions: No additional conditions are needed in relation to this environmental value.

3.2.3. land and water resources (Appreciable land degradation) - Clearing Principle (g)

Assessment:

The mapped soil types across the application area are complex as the area is reclaimed land from the creation of the Dawesville cut into the Peel-Harvey estuary in 1994 (Government of Western Australia, 2020). The soils are likely sands. However, over the years since the reclamation, the surrounding soils may have infiltrated the surrounding environments. The two closest soil types (Vasse System and the Spearwood System) are thus the most likely soil types of the application area mixed with sandy soils. The soil type across the application area is consequently susceptible to land degradation from wind and water erosion.

According to the available data, clearing of the native vegetation is likely to have a high to extremely high risk of phosphorous export into the surrounding environment based on the two soil types associated with the area. However, as the application area is reclaimed land, it likely has extremely low phosphorus, contrary to the soil typing. It is also unlikely that the soil in the application area has had significant phosphorous uptake since 1994. Because of this, it is doubtful that the proposed clearing will leach much phosphorus into the surrounding waterbodies.

Furthermore, the available data indicate high acid sulphate soils. However, the proposed clearing is not likely to disturb these soils as they are not boring or digging with any depth into the soil.

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 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 the above impacts, the following management measure will be required as a condition on the clearing permit:

- The permit holder must commence construction activities no later than two (2) months after undertaking the authorised clearing activities.

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. Site characteristics

Characteristic	Details									
Local context	<p>The proposed clearing area comprises 0.36 hectares of native vegetation and is situated 12.45 meters north of the Peel-Harvey estuary. The application area is surrounded by native vegetation. A Tuart (<i>Eucalyptus gomphocephala</i>) forest is located approximately 0.22 km northwest of the application area, and two more Tuart forests are to the west of the application area. Proposed clearing is not impacting these areas.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 55.54 per cent of the original native vegetation cover.</p>									
Ecological linkage	The application area is part of a larger vegetation area connected to the Southwestern regional Ecological linkage (14). The linkage intersects multiple threatened ecological communities (TEC). Proposed clearing is not likely to sever or impact the linkage functionality.									
Conservation areas	Multiple recreational reserves surround the application area. The closest conservation area is the Yalgorup regional park, located approximately 4.13 kilometres south of the application area. Len Howard conservation park is located approximately 5.74 kilometres northeast of the application area.									
Vegetation description	<p>Photographs supplied by the applicant indicate that the vegetation within the proposed clearing area consists of several weed species and a mix of native Acacia and Eucalyptus species (Appendix D).</p> <p>The application area does not have a mapped vegetation complex. This is because, before 1994, the application area and Lot 2197 were completely underwater. The application area is reclaimed land due to the construction of the Dawesville channel.</p> <p>The closest mapped vegetation systems to the application area are:</p> <table border="1"> <thead> <tr> <th>Complex</th> <th>Description</th> <th>Per cent remaining</th> </tr> </thead> <tbody> <tr> <td>Cottesloe vegetation complex (system 6 ID 52)</td> <td>A Mosaic of woodland of <i>Eucalyptus gomphocephala</i> (Tuart) and open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri); closed heath on the Limestone outcrops.</td> <td>Approximately 32.16 per cent of pre-European vegetation (Government of Western Australia, 2019).</td> </tr> <tr> <td>Karrakatta complex (system 6 ID 49)</td> <td>A predominantly open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri) and woodland of <i>Eucalyptus marginata</i> (Jarrah) - Banksia species. <i>Agonis flexuosa</i> (Peppermint) is co-dominant south of the Capel River.</td> <td>Approximately 23.49 per cent of pre-European vegetation (Government of Western Australia, 2019).</td> </tr> </tbody> </table> <p>These mapped vegetation systems are likely similar to the application area as slow natural recruitment from the edges of the vegetation systems will have occurred over time. The application area does not contain any Tuart trees.</p>	Complex	Description	Per cent remaining	Cottesloe vegetation complex (system 6 ID 52)	A Mosaic of woodland of <i>Eucalyptus gomphocephala</i> (Tuart) and open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri); closed heath on the Limestone outcrops.	Approximately 32.16 per cent of pre-European vegetation (Government of Western Australia, 2019).	Karrakatta complex (system 6 ID 49)	A predominantly open forest of <i>Eucalyptus gomphocephala</i> (Tuart) - <i>Eucalyptus marginata</i> (Jarrah) - <i>Corymbia calophylla</i> (Marri) and woodland of <i>Eucalyptus marginata</i> (Jarrah) - Banksia species. <i>Agonis flexuosa</i> (Peppermint) is co-dominant south of the Capel River.	Approximately 23.49 per cent of pre-European vegetation (Government of Western Australia, 2019).
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Vegetation condition	Photographs supplied by the applicant indicate that the native vegetation within the proposed clearing area is sparse, with vegetation in good to degraded condition.									

Characteristic	Details																														
	<p>Approximately 50 per cent of the total clearing area consists of native vegetation, and the remainder consists of cleared ground and multiple weed species.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.</p>																														
Climate and landform	The climate experienced in the area is a Mediterranean climate, with dry, hot summers and cool, wet winters.																														
Soil description	<p>The application area's soil type is more than likely a mixture of the two closest surrounding soil types and sands from the reclamation. The closest mapped soils are 103 meters north and 125 meters southwest of the application site:</p> <p>103 meters from application</p> <table border="1"> <tr> <td>Name</td> <td>Vasse System V6 Phase</td> </tr> <tr> <td>Soils</td> <td>211Va__V6</td> </tr> <tr> <td>Description</td> <td>Upper-level sandy terrace and gently undulating beach ridges with deep grey or bleached pale brown siliceous sands overlying soft shelly limestone.</td> </tr> </table> <p>125 meters from application</p> <table border="1"> <tr> <td>Name</td> <td>Spearwood System S1d Phase</td> </tr> <tr> <td>Soils</td> <td>211Sp__S1d</td> </tr> <tr> <td>Description</td> <td>Dune ridges with moderately deep to very deep siliceous yellow-brown sands, rare limestone outcrops and slopes of 3-20% occur on the eastern slip face.</td> </tr> </table>	Name	Vasse System V6 Phase	Soils	211Va__V6	Description	Upper-level sandy terrace and gently undulating beach ridges with deep grey or bleached pale brown siliceous sands overlying soft shelly limestone.	Name	Spearwood System S1d Phase	Soils	211Sp__S1d	Description	Dune ridges with moderately deep to very deep siliceous yellow-brown sands, rare limestone outcrops and slopes of 3-20% occur on the eastern slip face.																		
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Land degradation risk	<p>The degradation risk factors mapped closest to the application area are detailed below:</p> <table border="1"> <thead> <tr> <th></th> <th>Vasse 211Va__V6</th> <th>Spearwood 211Sp__S1d</th> </tr> </thead> <tbody> <tr> <td>Wind erosion</td> <td>M1 10 – 30% high to extreme wind erosion risk</td> <td>H2 > 70% high to extreme wind erosion risk</td> </tr> <tr> <td>Water erosion</td> <td>L1 <3% high to extreme erosion risk</td> <td>M1 10 – 30% high to extreme erosion risk</td> </tr> <tr> <td>Salinity risk</td> <td>L1 <3% moderate to high risk</td> <td>L1 <3% moderate to high risk</td> </tr> <tr> <td>Phosphorous export</td> <td>H2 >70% high to extreme risk</td> <td>H2 >70% high to extreme risk</td> </tr> <tr> <td>Waterlogging</td> <td>L1 <3% moderate to high risk</td> <td>L1 <3% moderate to high risk</td> </tr> <tr> <td>Subsurface acidification</td> <td>H2 >70% high risk</td> <td><3% high risk</td> </tr> <tr> <td>Acid sulphate soils</td> <td>High to moderate risk</td> <td>High to moderate risk</td> </tr> <tr> <td>Flooding</td> <td>L1<3% moderate to high risk</td> <td>L1<3% moderate to high risk</td> </tr> <tr> <td>Floodplains</td> <td>Yes</td> <td>Yes</td> </tr> </tbody> </table> <p>The salinity of the application area is mapped at 500-1000 total dissolved solids milligrams per litre.</p>		Vasse 211Va__V6	Spearwood 211Sp__S1d	Wind erosion	M1 10 – 30% high to extreme wind erosion risk	H2 > 70% high to extreme wind erosion risk	Water erosion	L1 <3% high to extreme erosion risk	M1 10 – 30% high to extreme erosion risk	Salinity risk	L1 <3% moderate to high risk	L1 <3% moderate to high risk	Phosphorous export	H2 >70% high to extreme risk	H2 >70% high to extreme risk	Waterlogging	L1 <3% moderate to high risk	L1 <3% moderate to high risk	Subsurface acidification	H2 >70% high risk	<3% high risk	Acid sulphate soils	High to moderate risk	High to moderate risk	Flooding	L1<3% moderate to high risk	L1<3% moderate to high risk	Floodplains	Yes	Yes
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Acid sulphate soils	High to moderate risk	High to moderate risk																													
Flooding	L1<3% moderate to high risk	L1<3% moderate to high risk																													
Floodplains	Yes	Yes																													

Characteristic	Details																														
Waterbodies	<p>The desktop assessment and aerial imagery indicated that the closest mapped wetlands to the application area are:</p> <ul style="list-style-type: none"> • The Peel-Harvey estuary, approximately 12.45 meters southeast from the application area • Bluewater lagoon connected to the estuary 0.94 kilometres north of the application area • The Indian Ocean located 1.47 kilometres directly west of the application area, • A small unnamed wetland (ID 91251) located approximately 0.91 kilometres west of the application area. 																														
Hydrogeography	<table border="1"> <tr> <td>Hydrological Zone</td> <td colspan="2">Coastal Plain</td> </tr> <tr> <td>Basin</td> <td colspan="2">Harvey River (613)</td> </tr> <tr> <td>Hydrographic Catchment</td> <td colspan="2">Harvey Estuary_Harvey River</td> </tr> </table> <table border="1"> <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>Southwest Coastal (UFI 43)</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>No</td> <td></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> <p>The application area is mapped within the Peel-Yalgorup System. This is the largest and most diverse estuarine complex in southwestern Australia and is a Ramsar conservation site. Additionally, the Peel-Harvey estuary is a wetland of international importance under the Ramsar convention on wetlands. The small clearing is not likely to impact the Ramsar site.</p>	Hydrological Zone	Coastal Plain		Basin	Harvey River (613)		Hydrographic Catchment	Harvey Estuary_Harvey River		RIWI Act Surface Water and Irrigation District	No		RIWI Act Rivers	No		RIWI Act Groundwater Areas	Yes	Southwest Coastal (UFI 43)	CAWS Act Clearing Control Catchment	No		Public Drinking Water Source Areas	No		Wellhead Protection Zone	No		Reservoir Protection Zone	No	
Hydrological Zone	Coastal Plain																														
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CAWS Act Clearing Control Catchment	No																														
Public Drinking Water Source Areas	No																														
Wellhead Protection Zone	No																														
Reservoir Protection Zone	No																														
Flora	<p>According to the available databases, 17 conservation significant flora species have been recorded within the local area (10-kilometre buffer) comprising two Threatened, five Priority 2, eight Priority 3 and two Priority 4 flora taxa. None of these records occur over the application area. The closest protected flora is 0.69 kilometres from the application area, being <i>Lasiopetalum membranaceum</i> (P3).</p> <p>Several weed species dominate the vegetation of the application area, including <i>Ehrharta longiflora</i>, <i>Ehrharta calycina</i>, <i>Eragrostis curvula</i> and <i>Lagurus ovatus</i>. The native species within the application area are a mix of native Acacia and eucalyptus species (Appendix D). None of the species identified in photographs represent conservation significant species.</p>																														
Ecological communities	<p>According to available databases, five conservation significant ecological communities have been mapped within the local area (10-kilometre buffer). None of these records occurs over the application area. The closest TEC is the Tuart Woodlands complex, 0.22km west of the application site.</p> <p>The proposed clearing does not resemble a TEC or Priority Ecological Community.</p>																														
Fauna	<p>According to available databases, 45 conservation significant fauna species have been recorded within the local area comprising five Priority 3, seven Priority 4, seven Endangered, six vulnerable, four critically endangered, 13 migratory, one specially</p>																														

Characteristic	Details
	<p>protected species (OS), and two specially protected species (Consecration dependent) fauna taxa. Four fauna are associated with only marine, estuarine or freshwater habitats that do not occur within the application area.</p> <p>Of the 41 terrestrial fauna species, 10 are non-avian. The closest are the <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot) and the <i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir), located 0.63 and 0.25 kilometres away, respectively.</p> <p>Of the 31 avian species the closest are the <i>Calidris canutus</i> (Red knot), <i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo), and <i>Tringa nebularia</i> (Common greenshank, greenshank) all of which are 0.73 kilometres away from the application area. All three species of black cockatoo (<i>Zanda latirostris</i> (Carnaby's black cockatoo), <i>Zanda baudinii</i> (Baudin's black cockatoo), and <i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)) have been recorded within a 12-kilometre radius of the application area with 12 black cockatoo roosts in the radius, the closest roost being 1.76 kilometres away.</p> <p>Noting the habitat requirements, the distribution of the recorded species, the mapped vegetation types, and the condition of the vegetation within the application area, the application area is likely to comprise suitable habitat for the following fauna species:</p> <ul style="list-style-type: none"> • Black-striped burrowing snake • Quenda • Swan coastal plain shield-black trapdoor spider • Western ringtail possum

A.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	17.98
Vegetation complex that may correspond with the application area**					
Cottesloe Complex-Central and South system 52	45,299.61	33,011.64	32.16	6,606.12	14.58
Karrakatta complex- Central and south System 49	53,080.99	12,467.20	23.49	4,282.73	8.07
Local area					
10km radius	83,642.08	46,458.33	55.54	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), 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]
<i>Acacia benthamii</i>	P2	N	N	N	7.74 km	1	N
<i>Chamaescilla gibsonii</i>	P3	N	N	N	6.16 km	>5	N
<i>Caladenia huegelii</i>	T	N	N	Y	2.27 km	54	N
<i>Conostylis pauciflora</i> subsp. <i>Pauciflora</i>	P4	N	N	Y	2.49 km	12	N
<i>Craspedia sp. Waterloo</i> (G.J. Keighery 13724)	P3	NA	NA	NA	9.56 km	1	N
<i>Dillwynia dillwynioides</i>	P2	Y	Y	Y	8.36 km	612	N
<i>Drakaea elastica</i>	T	N	N	Y	7.74 km	13	N
<i>Eryngium pinnatifidum</i> subsp. <i>Palustre</i> (G.J. Keighery 13459)	P3	N	N	N	7.34 km	1	N
<i>Eryngium pinnatifidum</i> subsp. <i>Umbraphilum</i> (G.J. Keighery 13967)	P2	N	N	N	7.77 km	1	N
<i>Eryngium pinnatifidum</i> subsp. <i>Umbraphilum</i> (G.J. Keighery 13967)	P2	N	N	Y	7.73 km	1	N
<i>Hakea oligoneura</i>	P2	NA	NA	NA	3.65 km	2	N
<i>Hibbertia leptotheca</i>	P3	Y	Y degraded	Y	7.39 km	11	N
<i>Lasiopetalum membranaceum</i>	P3	Y	Y degraded	Y	0.69 km	60	N
<i>Meionectes tenuifolia</i>	P3	N	N	N	8.25 km	7	N
<i>Myriophyllum echinatum</i>	P3	N	N	N	8.20 km	1	N
<i>Rumex drummondii</i>	P4	N	N	N	6.71 km	>5	N
<i>Styloidium maritimum</i>	P3	N	N	N	8.90 km	22	N

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

Species with niche environments have been excluded from the list and are unlikely to be present within the area.

A.4. 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]
Birds						
<i>Apus pacificus</i> (Fork-tailed swift)	MI	N	N	8.58 km	5	N
<i>Arenaria interpres</i> (Ruddy turnstone)	MI	N	N	7.92 km	2	N
<i>Calidris acuminata</i> (Sharp-tailed sandpiper)	MI	N	N	1.50 km	>4000	N
<i>Calidris canutus</i> (Red knot)	EN	Y	N	0.73 km	>12000	N
<i>Calidris ferruginea</i> (curlew sandpiper)	CR	Y	N	8.75 km	>3000	N

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>Calidris tenuirostris</i> (Great knot)	CR	N	N	7.70 km	5	N
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	N	N	4.05 km	59	N
<i>Charadrius leschenaultia</i> (Greater sand plover, large sand plover)	VU	N	N	8.94 km	2	N
<i>Charadrius mongolus</i> (Lesser Sand Plover)	EN	Y	N	1.50 km	1	N
<i>Falco peregrinus</i> (Peregrine falcon)	OS	N	N	1.34 km	4	N
<i>Limosa lapponica</i> (Bar-tailed godwit)	MI	Y	N	7.70 km	18	N
<i>Limosa limosa</i> (Black-tailed godwit)	P4	N	N	7.71 km	5	N
<i>Numenius madagascariensis</i> (Eastern curlew)	CR	Y	N	7.70 km	16	N
<i>Numenius phaeopus</i> (Whimbrel)	MI	N	N	7.70 km	18	N
<i>Oxyura australis</i> (Blue-billed duck)	P4	N	N	5.94 km	5	N
<i>Pandion cristatus</i> (osprey, eastern osprey)	MI	N	N	3.69 km	4	N
<i>Plegadis falcinellus</i> (Glossy ibis)	MI	N	N	8.44 km	6	N
<i>Pluvialis fulva</i> (Pacific golden plover)	MI	Y	N	7.92 km	3	N
<i>Pluvialis squatarola</i> (Grey plover)	MI	Y	N	0.73 km	18	N
<i>Sterculia nereis nereis</i> (fairy tern)	VU	Y	N	9.01 km	160	N
<i>Sterna hirundo</i> (Common tern)	MI	Y	Y	7.65 km	1	N
<i>Thalasseus bergii</i> (Crested tern)	MI	Y	N	0.73 km	130	N
<i>Thalassarche chlororhynchos</i> (Atlantic yellow-nosed albatross)	VU	Y	N	3.63 km	2	N
<i>Thalassarche melanophris</i> (Black-browed albatross)	EN	N	N	3.63 km	1	N
<i>Thinornis rubricollis</i> (hooded plover, hooded dotterel)	P4	Y	N	9.36 km	3	N
<i>Tringa glareola</i> (Wood sandpiper)	MI	N	N	8.74 km	1	N
<i>Tringa nebularia</i> (Common greenshank, greenshank)	MI	Y	Y	0.73 km	39	N
<i>Tyto novaehollandiae novaehollandiae</i> (masked owl (southwest))	P3	N	N	9.46 km	1	N
<i>Zanda baudinii</i> (Baudin's cockatoo)	EN	N	N	5.01 km	2	N
<i>Zanda sp. 'white-tailed black cockatoo'</i> (white-tailed black cockatoo)	EN	N	N	2.58 km	>2000	N
<i>Zanda latirostris</i> (Carnaby's cockatoo)	EN	N	N	0.73 km	>7000	N
Mammals						
<i>Hydromys chrysogaster</i> (water-rat, rakali)	P4	Y	N Dead 2011	3.58 km	1	N
<i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)	P4	Y	Y	0.63 km	88	N
<i>Notamacropus irma</i> (Western brush wallaby)	P4	N	N	6.9 km	1	N
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale, wambenger)	CD	N	N	1.74 km	3	N
<i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir)	CR	Y degraded	Y degraded	0.25 km	268	N
Reptiles						
<i>Ctenotus ora</i> (Coastal Plains skink)	P3	Y	N	9.09 km	2	N

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>Lerista lineata</i> (Perth slider, lined skink)	P3	NA	NA	1.40 km	11	N
<i>Neelaps calonotos</i> (black-striped snake, black-striped burrowing snake)	P3	Y	Y	4.00 km	2	N
Invertebrates						
<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)	P3	N	N	3.15 km	5	N
<i>Synemon gratiosa</i> (Graceful sunmoth)	P4	Y	N	8.58 km	80	N

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

Note: According to the available database, 45 conservation significant fauna species have been recorded within the local area comprising of five Priority 3, seven Priority 4, seven Endangered, six vulnerable, four critically endangered, 13 migratory, one specially protected species (OS), and two specially protected species (Consecration dependent) fauna taxa. Of these, four fauna area associated with marine, estuarine or freshwater habitats that do not occur within the application area and have been excluded from the table.

A.5. Ecological community analysis table

Community 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]
Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain	P3	N	N	N	0.22 km	>105	N
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	N	N	N	1.99 km	87	Y
Subtropical and Temperate Coastal Saltmarsh	P3	N	N	N	1.30 km	15	Y
Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994))	V	N	N	N	6.90 km	2	Y
Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain (floristic community type 15 as originally described in Gibson et al. (1994))	V	N	N	N	7.50	1	Y

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		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared does not contain locally / regionally significant flora, fauna, habitats, or assemblages of plants.</p> <p>The proposed clearing includes 0.36 hectares of vegetation in a degraded condition and one tree. Given the limited area and the low species diversity, it is not likely that the vegetation in the application area is representative of an area of high biodiversity.</p>	Not at variance	No
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The native vegetation may contain habitat for the <i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot), <i>Pseudocheirus occidentalis</i> (western ringtail possum, ngwayir), <i>Neelaps calonotos</i> (black-striped snake, black-striped burrowing snake), <i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider).</p>	May be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared is unlikely to contain habitat for Threatened flora species.</p>	Not at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u> The area proposed to be cleared does not contain species that can indicate a threatened ecological community (TEC).</p>	Not at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u> The application area is located within the Perth Metropolitan Region Scheme boundary, which the Environmental Protection Authority recognises as a constrained area within which a minimum 10 per cent representation threshold for ecological communities is recommended (Environmental Protection Authority, 2008). The mapped vegetation extent is greater than 55 per cent. Application area is not located within an extensively cleared landscape.</p>	Not at variance	No
<p><u>Principle (h):</u> <i>“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.”</i></p> <p><u>Assessment:</u> Given the distance to the nearest conservation area, the proposed clearing is unlikely to impact the environmental values of any conservation areas.</p>	Not at variance	No
Environmental value: land and water resources		
<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>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Assessment:</u> The proposed clearing application area is located approximately 21 metres north of the Peel-Harvey estuary and 28 metres west of the Dawesville channel. The vegetation being cleared is growing in association with the estuary.</p>		
<p><u>Principle (g):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</p> <p><u>Assessment:</u> The mapped soils in the area are reclaimed lands stemming from the creation of the Peel-Harvey estuary in 1994. The mapped soils are highly susceptible to wind erosion, a moderate water erosion risk and a high phosphorous export risk.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u> The groundwater salinity within the application area is 500-1000 milligrams per litre of total dissolved solids. This level of groundwater salinity is considered to be marginal. Soils will not be excavated at depth, and the risk to groundwater is low. The proposed clearing is likely to maintain the same level of groundwater salinity. Impacts to the surface quality of the adjacent estuary are likely to be minimal and short term. Proposed clearing if not likely to cause deterioration in the quality of surface or ground water.</p>	Not at variance	No
<p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u> The mapped soils and topographic contours in the surrounding area do not indicate that the proposed clearing will likely contribute to increased incidence or intensity of flooding.</p>	Not 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 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.

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. Photographs of the vegetation (City of Mandurah, 2022a)



<p>This document is compiled from various sources and whilst the City of Mandurah has made every effort to ensure the accuracy and currency of the information, Council accepts no responsibility or liability for any errors or omissions.</p>	<p>Photo points and direction facing</p>	<p>Printed <u>by</u>: Eryn Jackson</p>	<p>Original Size</p> <p>A4</p>		<p>CITY OF MANDURAH</p> <p>E: council@mandurah.wa.gov.au T: 08 9550 3777 F: 08 9550 3888 3 Peel St, Mandurah WA 6210 mandurah.wa.gov.au</p>
		<p><u>Date</u>: 14/11/2022</p>			
		<p><u>Scale</u>: 1:1223</p>			
		<p>Drawn <u>by</u>: Intamaps</p>			



Figure a: Application area photograph 1, photo taken in Southwestern direction.



Figure b: Application area photograph 2, photo taken north-eastern direction.



Figure c: Application area photograph 3, photo taken northern direction



Figure d: Application area photograph 4, photo taken in western direction



Figure e: Application area photograph 5, photo taken in north-eastern direction.

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)

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