GOVERNMENT OF
WESTERN AUSTRALIA

# CLEARING PERMIT

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

| | |
|---|---|
| **Purpose Permit number:** | CPS 10843/1 |
| **Permit Holder:** | City of Rockingham |
| **Duration of Permit:** | From 14 April 2025 to 14 April 2035 |

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 boat ramp and beach access path upgrades.

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

Lot 444 on Deposited Plan 922779, Rockingham (Crown Reserve 22779)

Lot 4556 on Deposited Plan 220689, Rockingham (Crown Reserve 50180)

**3. Clearing authorised**

The permit holder must not clear more than 0.027 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

**4. Period during which clearing is authorised**

The permit holder must not clear any native vegetation after 10 April 2030

## PART II – MANAGEMENT CONDITIONS

**5. 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.

**6. 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.

**7. Directional clearing**

The Permit Holder must:

(a) conduct all clearing authorised under this permit in one direction towards adjacent native vegetation; and

(b) allow a reasonable time for fauna present within the area being cleared to move into that adjacent native vegetation ahead of the clearing activity.

**8. Wind erosion management**

The permit holder must commence boat ramp upgrades or *rehabilitation* activities no later than one (1) month after undertaking the authorised clearing, to reduce the potential for wind erosion.

**9. *Revegetation* and *rehabilitation* (temporary works)**

(a) The permit holder must *revegetate* and *rehabilitate* areas cleared for temporary works, within the areas cross-hatched yellow on Figure 1 of Schedule 1 and located on Lot 444 on Deposited Plan 922779, Rockingham (Crown Reserve 22779), within one (1) month of the areas no longer being required for the purpose for which they were cleared.

(b) *Revegetation* and *rehabilitation* must be undertaken through *direct seeding* and/or planting, using *local provenance* species and propagation material.

(c) The permit holder must, within 24 months of undertaking *rehabilitation* and *revegetation* of area in accordance with condition 9(a) of this permit:

(i) engage an *environmental specialist* to determine the species composition, structure and density of the areas *revegetated* and *rehabilitated*; and

(ii) engage an *environmental specialist* to make a determination as to whether the composition, structure and density determined under condition 9(c)(i) of this permit will, without further *revegetation*, result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area.

(d) If the determination made by the *environmental specialist* under condition 9(c)(ii) is that the species composition, structure, and density determined under condition 9(c)(i) will not, without further *revegetation,* result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, the permit holder must *revegetate* the area by deliberately planting and/or *direct seeding native vegetation* seeds that will result in a similar species composition, structure, and density of native vegetation to pre-clearing vegetation types in that area.

## PART III - RECORD KEEPING AND REPORTING

### 10. Records that must be kept

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

**Table 1: Records that must be kept**

| No. | Relevant matter | Specifications |
|---|---|---|
| 1. | In relation to the authorised clearing activities generally | (a) the species composition, structure, and density of the cleared area;<br>(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;<br>(c) the date that the area was cleared;<br>(d) the size of the area cleared (in hectares); and<br>(e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; and<br>(f) actions taken to minimise the risk of the introduction and spread of *weeds* and *dieback* in accordance with condition 5.<br>(g) actions taken in accordance with condition 6 and 7. |
| 2. | In relation to *revegetation* and *rehabilitation* activities undertaken in accordance with condition 8. | (a) the size of the area *revegetated* and *rehabilitated*.<br>(b) the date(s) on which the area *revegetation* and *rehabilitation* was undertaken; and<br>(c) the boundaries of the area *revegetated* and *rehabilitated* (recorded digitally as a shapefile).<br>(d) *Revegetation* and *rehabilitation* actions undertaken.<br>(e) the species composition, structure and density of the areas *revegetated* and *rehabilitated;* and<br>(f) The *environmental specialist* determination in accordance with condition 9(c)(ii). |

### 11. Reporting

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

## DEFINITIONS

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

**Table 2: Definitions**

| Term | Definition |
|---|---|
| CEO | Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*. |
| clearing | has the meaning given under section 3(1) of the EP Act. |
| condition | a condition to which this clearing permit is subject under section 51H of the |

| Term | Definition |
|---|---|
| | EP Act. |
| environmental specialist | means a person who holds a tertiary qualification in environmental science or equivalent and has a minimum of 2 years work experience relevant to the type of environmental advice that an environmental specialist is required to provide under this permit, or who is approved by the CEO as a suitable environmental specialist. |
| direct seeding | means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species. |
| fill | means material used to increase the ground level, or to fill a depression. |
| dieback | means the effect of *Phytophthora* species on native vegetation. |
| department | means the department established under section 35 of the Public Sector Management Act 1994 (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3. |
| EP Act | Environmental Protection Act 1986 (WA) |
| local provenance | means native vegetation seeds and propagating material from natural sources within 50 km and the same IBRA subregion of the area cleared. |
| 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. |
| rehabilitate/ rehabilitated/ rehabilitation | Means actively managing an area containing native vegetation in order to improve the ecological function of that area. |
| revegetate/ vegetated/ revegetation | Means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area. |
| weeds | means any plant –<br>(a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or<br>(b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or<br>(c) not indigenous to the area concerned. |

**END OF CONDITIONS**

Jessica Burton
MANAGER
NATIVE VEGETATION REGULATION

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

19 March 2025

# Schedule 1

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

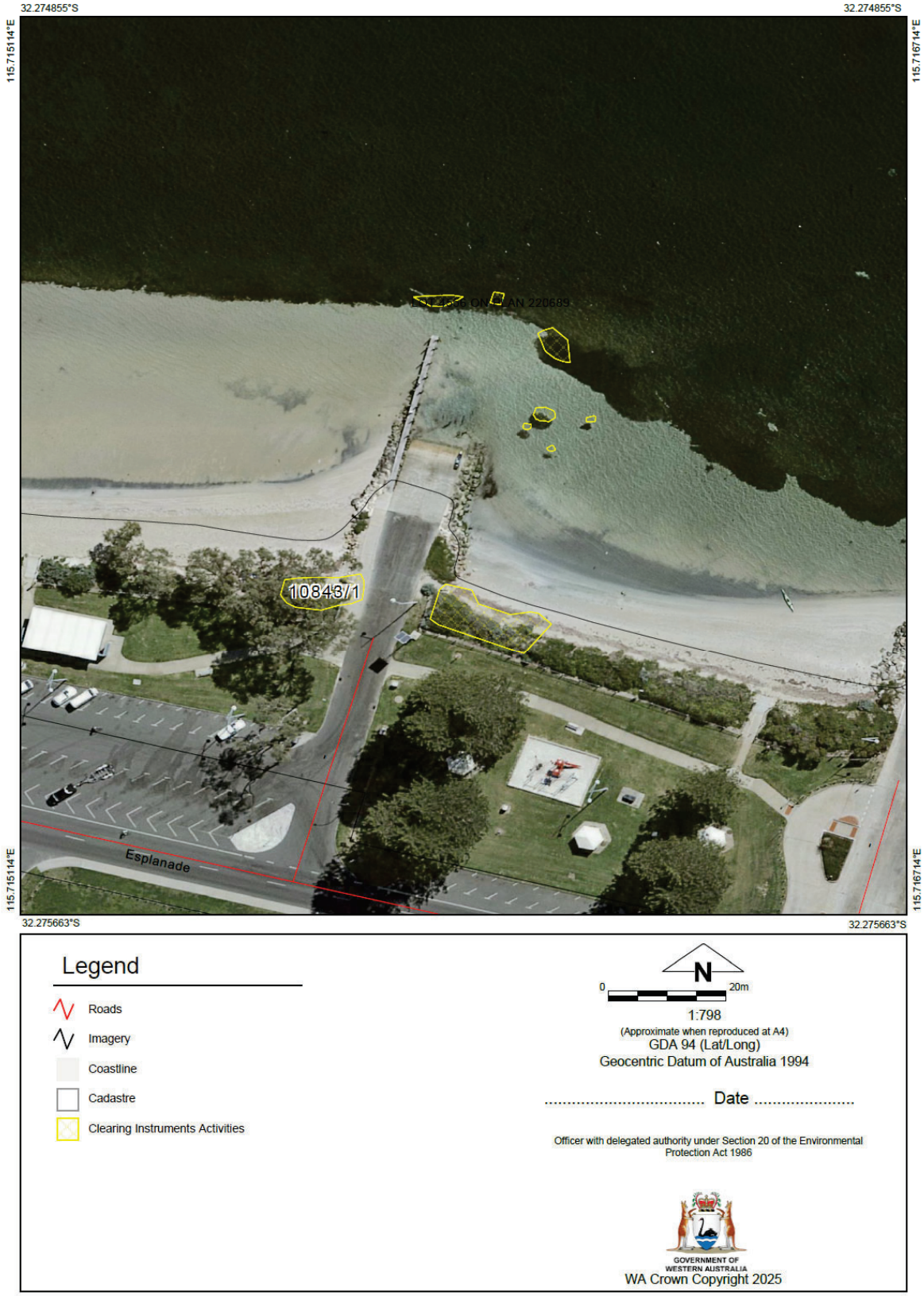


**Figure 1: Map of the boundary of the area within which clearing may occur**

Government of Western Australia
Department of Water and Environmental Regulation

# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

| | |
|---|---|
| **Permit number:** | CPS 10843/1 |
| **Permit type:** | Purpose permit |
| **Applicant name:** | City of Rockingham |
| **Application received:** | 19 November 2024 |
| **Application area:** | 0.027 hectares of native vegetation |
| **Purpose of clearing:** | Boat ramp and beach access upgrades |
| **Method of clearing:** | Mechanical |
| **Property:** | Lot 444 on Deposited Plan 922779 (Reserve R22779; Parcel Number 35732)<br>Lot 4556 on Deposited Plan 220689 (Reserve R50180) |
| **Location (LGA area/s):** | City of Rockingham |
| **Localities (suburb/s):** | Rockingham |

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is distributed across two terrestrial areas and seven (7) marine areas (see Figure 1, Section 1.5).

The vegetation to be cleared is located on the Esplanade at the southern end of Cockburn Sound. An engineering condition assessment of the western boat ramp facility (Palm Beach West Boat Ramp Facility; the site) was commissioned by the City of Rockingham (the City) in 2016. This assessment found that the facility's marine infrastructure was experiencing degradation, with the recommendation made to undertake a major refurbishment the site to meet relevant current day Australian Standards and Department of Transport Guidelines. The proposed works will provide a public benefit.

The applicant advised that Palm Beach boat ramp facilities are the 3rd most popular recreational vessel launching and retrieval option within the City of Rockingham. There are two individual boat ramp facilities, being Palm Beach's eastern and western boat ramps. While the eastern facility was fully refurbished in late 2009, its adjacent western facility's most recent refurbishment activities took place in 2000, which at the time comprised of the addition of concrete ramp lanes, a fixed timber finger jetty on its western side which also acts as a wooden groyne to trap sand and scour protection. In recent years this western facility has experienced wear and tear through seasonal exposure to large storm surges and wave impacts. The proposed upgrades are required to ensure the safety of members of the public using the facilities.

### 1.3. Decision on application

| | |
|---|---|
| **Decision:** | Granted |
| **Decision date:** | 19 March 2025 |
| **Decision area:** | 0.027 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) and site photos (see Appendix D), 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 took into consideration the purpose of the clearing is to improve community safety and services and will provide a public benefit.

The assessment identified that the proposed clearing will result in:

- the loss of 0.022 hectares of terrestrial native vegetation growing on the Western Australian coastline
- the loss of 0.005 hectares of marine seagrass growing in State waters
- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values and
- potential land degradation in the form of wind erosion
- potential impacts to terrestrial fauna individuals at the time of clearing.

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 proposed clearing is unlikely to lead to appreciable land degradation or have long-term adverse impacts on the environment. Short term impacts can be minimised and managed to unlikely lead to an unacceptable risk to the environment. The applicant has suitably demonstrated avoidance and minimisation measures.

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 timed clearing to minimise wind erosion
- revegetation and rehabilitation of areas no longer required for the purpose they were cleared
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity

## 1.5. Site map


**Figure 1 Map of the application area**

The areas crosshatched yellow indicates 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)
- *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)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

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. The applicant has given due consideration to onsite mitigation measures to ensure clearing and construction activities minimise impacts to environmental values present.

The applicant has made the following commitments in their Environmental Management Plan (City of Rockingham, 2024):

**Terrestrial**
Clearing will be limited to small shrubs within the application area. All large trees will be retained and management measures for their protection will be in accordance with Australian Standard 4970:2009 Protection of trees on development sites. In accordance with AS 4970:2009, where works are proposed within the Tree Protection Zone of trees to be retained, an approved Tree Protection Management Plan shall be implemented for the duration of works.

Access to the site including paths and vehicle turning loops are positioned to avoid impacts to mature trees as far as practicable. The applicant will ensure native vegetation outside of the project area will be identified prior to works commencing and undertake measures for their retention, implemented in accordance with *AS 4907-2009 Protection of Trees on Development Sites.*

The Civil Contractor will be responsible for managing potential impacts to terrestrial fauna in accordance with the following:
- A fauna spotter will be present during all clearing activities.
- Cease works and allow terrestrial fauna to move freely into neighbouring vegetation.
- Works shall only resume when fauna are clear of the clearing footprint.

<u>Management of wind erosion and dust</u>
The Contractor must take all reasonable steps to prevent all dust and windborne material emanating from the site. This includes ensuring that works are in accordance with "*A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*" (Department of Environment and Conservation, March 2011).

<u>Rehabilitation</u>
Following completion of works the foreshore area shall be revegetated utilising endemic species. This work will be undertaken by the City of Rockingham's Natural Area Maintenance Team.

**Marine**
All machinery will be fitted with GPS with the clearing footprint installed. Any works within 20m of the seagrass beds will be supervised by a spotter to ensure all works remain within the project footprint and no clearing of seagrass occurs outside of the approved area.

There is the potential for pile driving activities to cause direct impacts to marine fauna from underwater noise and/or vibration emissions. The Civil Contractor will be responsible for carrying out marine fauna observations and data collection in accordance with the following:

- Monitor marine fauna presence commencing ten minutes before the start of pile driving activities.
- A 150m marine fauna exclusion zone will be implemented.
- Cease works if a sea lion, dolphin, whale or little penguin is observed within the exclusion zone. Works shall only resume when the sea lion, dolphin, whale or little penguin has moved outside of the exclusion zones of its own accord.
- Cease works immediately if any deceased fauna is observed within the 500m exclusion zone, works shall not recommence until the deceased fauna has been investigated by the DBCA.
- Deceased fauna observations are to be reported immediately to the City's Representative who will notify DBCA.
- A Marine Fauna Observation Log is to be completed daily to record all marine fauna observed within the exclusion zones.
- The Marine Fauna Log is to be submitted to the City's Representative at the end of each week and to the DBCA following completion of works.

Management of the risk of indirect impacts to seagrass
The Contractor shall monitor the turbidity from the excavation work through twice daily observations. The monitoring must include recording the sea state, current, wave, wind and rain conditions as well as any turbid plume caused by excavation works. A sketch of the visual extent of turbidity must be recorded. Daily observation sheets (Attachment 2) must be supplemented by supporting photographs, taken from consistent locations to clearly show any plume. The Contractor must report, in writing, any turbid plumes to the City's Representative immediately.

If sediment encroaches on seagrass or smothering is imminent the Contractor must cease works immediately. Silt curtains will be installed and adequately secured for the duration of works to contain sediment movement at the site. The Contractor is to ensure that silt curtains are adequately installed to prevent drag during inclement weather.

After consideration of avoidance and mitigation measures, it was determined that there were no significant residual impacts resulting from the clearing and therefore an offset is not required.

## 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 degradation. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

### *3.2.1. Biological values (fauna) - Clearing Principles (b)*

Assessment
**Terrestrial**
A basic and targeted flora and vegetation survey of the application area and other City of Rockingham reserves were conducted by Natural Area Holdings in 2021. Vegetation within the western application area is mapped as Tuart Open Woodland, with the vegetation in the eastern area being Mixed Coastal Shrubland (City of Rockingham, 2022). The site also contains an area of public open space consisting of a number of mature *Eucalyptus gomphocephala* (Tuart) trees and planted *Araucaria heterophylla* (Norfolk Island Pine). The vegetation within the application area is in degraded to good (Keighery, 1994) condition (City of Rockingham, 2022) and does not contain Tuart trees, is in a highly disturbed recreation area and is in small patches with increased impacts from edge effects.

The applicant has advised that the proposed clearing will be limited to small shrubs within the terrestrial footprint and seagrass within the marine footprint of the proposed clearing area. No large trees occur within the area proposed to be cleared and will be protected during the proposed clearing.

The vegetation within the application area in consistent with the habitat requirements for six priority bird species, one priority mammal species and two priority reptile species known from the local area (City of Rockingham, 2022).Two priority fauna have been observed within the application area; *Isoodon fusciventer* (Quenda; Priority 4) and *Lerista lineata* (Perth Lined Lerista; Priority 3) (City of Rockingham, 2022). The vegetation within the application area may provide hunting habitat for birds of prey, shelter and resources for mammals, reptiles and amphibians and potential habitat trees (trees which may develop hollows) suitable for conservation significant species such as Black Cockatoos.

*Isoodon fusciventer* (Quenda; Priority 4) inhabits forest, woodland and heathland, usually with dense understorey vegetation, sometime wetland fringes; forages for plant material, fungi and insects by digging in leaf litter and soil. The application area is in degraded to good condition with the understorey vegetation structure being significantly altered. Given the condition and small extent of the vegetation, it is unlikely to support individuals to persist in this area. It is likely that this species persists in areas of better-quality habitat nearby and uses the vegetation within the application area as transient habitat.

*Lerista lineata* (Perth Lined Lerista; Priority 3) is a poorly known short range endemic species. It occurs in a range of habitats from Swan River to Binningup and Swan River to Busselton, including Rottnest Island and Garden Island and highly fragmented habitats along the Swan Coastal Plain. This species most likely has poor dispersal abilities and relies on litter ground cover and other debris for shelter. There are no data to suggest that *L. lineata* is significantly impacted by introduced predators or recreational use of bush remnants. Given the limited ground cover within the application area, and the small extent, it is unlikely that the vegetation within the application area is the main habitat for individuals recorded within the area. The vegetation is likely to be transient for a population associated with the nearby Point Peron Conservation Park.

**Marine**

A seagrass meadow consisting of *Posidonia spp*, is located adjacent to the project area. Ground truthing to confirm the presence of seagrass was undertaken by City of Rockingham in 2024. The proposed clearing is likely to directly impact 50m2 of seagrass meadow.

Seagrass meadows provide an important food source and shelter a large variety of other marine plants and animals and form the basis of a complex and ecologically significant food web. Seagrasses provide nursery areas for species such as western rock lobsters, pink snapper and herring that are important to our fishing industries of Cockburn Sound. Seagrass habitats can be found all along the coast of WA, with significant seagrass communities in Shark Bay, Cockburn Sound, Geographe Bay, and the South Coast.

The seagrass habitat of Cockburn Sound has experienced significant losses (~70 per cent) from the 1950s to the 1990s due to a notable increase in nutrients and pollutants from industrial activities in and around Kwinana. A variety of marine fauna species that typically occur within Cockburn Sound and therefore may occasionally be located within the site are summarised in section A.3. Given the shallow water depth at the site and limited impacts to seagrass, marine fauna are expected to be transient visitors within the application area and unlikely to be directly impacted by the proposed clearing.

Given the depth of the water column where clearing is to occur, it is not likely that any conservation significant fauna will utilise the seagrass within the application area however other fauna may be present at the time of clearing.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.027 hectares of habitat for conservation significant fauna. Given the small extent, condition and level of disturbance, the vegetation is not likely to be significant habitat for fauna.

For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant fauna is minimal and can be managed by taking steps to minimise the risk of the introduction and spread of weeds and slow directional clearing to allow fauna. The Delegated Officer also had consideration for the applicant's commitment to rehabilitate the site where possible to ensure habitat is not permanently lost.

Conditions

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

- Hygiene Management – management of weeds and dieback to avoid spread of contaminated material into uncontaminated areas and ensure opportunities for rehabilitation are maximised.

- Fauna Management - Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals
- Revegetation and Rehabilitation of temporarily cleared areas.

### *3.2.2. Biological values (biodiversity and TEC) - Clearing Principles (a) & (d)*

Assessment

**Flora**

One conservation significant flora species is recorded in the local area on the same soil and vegetation types as the application area. The closest record of this species is 450 metres south-west of the application area.

*Dodonaea hackettiana*(Priority 4) is an erect shrub or tree growing to approximately 1-5 metres high. It has yellow-green/red flowers mainly occurring from July to October. This species is known to occur in sand and outcropping limestone habitats. The closest record of this species is recorded in *Acacia rostellifera* tall shrubland over *Melaleuca systena* in a dune of grey sand and is 4-5 metres tall. The occurrence is within the Point Peron Conservation Park. This species is not known to occur within the application area, and it is expected to be easily identifiable given it's growth form, if it were present. Given this the risk that this species occurs within the application area is low.

**Threatened Ecological Community**

The Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plainis a nationally significant ecological community. This nationally protected ecological community is comprised of woodlands or forests within which the presence of Tuart (*Eucalyptus gomphocephala*) trees in the uppermost canopy are the primary defining feature. The community also often contains other native trees such as Peppermint, Bull Banksia, Candlestick Banksia or Jarrah, with a substantial diversity of understorey plants. It occurs where there are multiple Tuart trees with crowns separated by a distance of no more than 60 m, with an understorey containing a minimum number of native plant species or demonstrating other important conservation values.

The approved conservation advice for this community details to following diagnostic criteria:

- Occurs in the Swan Coastal Plain Bioregion, Western Australia (IBRA v7. Department of the Environment 2012).
- Primarily occurs on the Spearwood and Quindalup dune systems, but can also occur on the Bassendean dunes and Pinjarra Plain. It can occur on the banks of rivers and wetlands.
- The primary defining feature is the presence of at least two living established *Eucalyptus gomphocephala* (Tuart) trees in the uppermost canopy layer, although they may co-occur with trees of other species. There is a gap of no more than 60 m between the outer edges of the canopies of adjacent Tuart trees. These trees may occur either as single stemmed trees or as a mallee growth form.
- Most often occurs as a woodland but can occur in other structural forms, For example, forest, open forest, woodland, open woodland, and various mallee forms (NVIS Technical Working Group 2017).
- Other tree species may be present in the canopy or sub-canopy. They commonly include: *Agonis flexuosa* (Peppermint) and *Banksia grandis* (Bull Banksia) (both in the southern part of the range), *Banksia attenuata* (Candlestick Banksia), *Eucalyptus marginata* (Jarrah); and less commonly, *Corymbia calophylla* (Marri), *Banksia menziesii* (Firewood Banksia) and *Banksia prionotes* (Acorn Banksia).
- An understorey of native plants is typically present, which may include grasses, herbs and shrubs, although this is often modified by disturbance.

The patch of tuart woodland identified to the west of the application area was found to meet the key diagnostic criteria however does not form part of the nationally protected ecological community as the patch size is less than 0.5 hectares in size (Department of Environment and Energy, 2019).

Conclusion

Based on the above assessment, and with consideration for the applicant's management measures, the proposed clearing is not likely to result in significant risk to biodiversity or threatened ecological communities.

Conditions

- Nil recommended

### *3.2.3. Land degradation (wind and water erosion) - Clearing Principles (g)*

Assessment

**Terrestrial**

The general geology of the site comprises of calcareous sand, with silts and clays at the base of the Cockburn Sound basin. These soils are highly susceptible to wind erosion and the location of the site is such that the cleared areas

will be exposed to strong coastal winds. The application area is split into two smaller patches (east and west) and where possible trees will be retained within the application area, maintaining soil stability.

The applicant has committed to a number of management measures to reduce the impact of wind erosion on terrestrial areas including inclusion of the requirement for works to be completed in accordance with the Departments guideline "*A guideline for managing the impacts of dust and associated contaminants from land development sites, contaminated sites remediation and other related activities*" (Department of Environment and Conservation, March 2011).

**Marine**

Clearing seagrass has the potential to destabilise the substrate and cause turbidity and sedimentation in the water column. Turbidity and sedimentation have the potential to impact the growth of seagrass beyond the clearing area and the ability of fauna to utilise the water column above the clearing area.

The applicant has committed to a number of management and mitigation measures to minimise the impact of turbidity and sedimentation as a result of clearing native vegetation. The Delegated Officer had consideration for the below management measures, and the small extent of clearing, in determining that the impacts of the clearing would not cause appreciable land degradation.

City of Rockingham (2022) management of turbidity and sedimentation:

- monitor the turbidity from the excavation work through twice daily observations. The monitoring must include recording the sea state, current, wave, wind and rain conditions as well as any turbid plume caused by excavation works. A sketch of the visual extent of turbidity must be recorded. Daily observation sheets must be supplemented by supporting photographs, taken from consistent locations to clearly show any plume.
- Written reports of any turbid plumes
- If sediment encroaches on seagrass or smothering is imminent works must cease immediately. Silt curtains will be installed and adequately secured for the duration of works to contain sediment movement at the site. Ensure that silt curtains are adequately installed to prevent drag during inclement weather.

Conclusion

Based on the above assessment, and with consideration for the applicant's management measures, the proposed clearing is not likely to result in appreciable land degradation. The impacts of wind and water erosion are likely to be short term and can be managed through the applicant's proposed management measures.

Conditions

In addition to the applicant's commitment the following management measures will be required as conditions on the clearing permit:

- Authority to Clear – construction or rehabilitation must take place within one month of the clearing being undertaken to avoid long term impacts of wind erosion.
- Revegetation and Rehabilitation of temporarily cleared areas

## 3.3. Relevant planning instruments and other matters

The applicant advised that Palm Beach boat ramp facilities are the 3rd most popular recreational vessel launching and retrieval option within the City of Rockingham. There are two individual boat ramp facilities, being Palm Beach's eastern and western boat ramps. While the eastern facility was fully refurbished in late 2009, its adjacent western facility's most recent refurbishment activities took place in 2000, which at the time comprised of the addition of concrete ramp lanes, a fixed timber finger jetty on its western side which also acts as a wooden groyne to trap sand and scour protection. In recent years this western facility has experienced wear and tear through seasonal exposure to large storm surges and wave impacts.

An engineering condition assessment of the western boat ramp facility was commissioned by the City of Rockingham in 2016. This assessment found that the facility's marine infrastructure was experiencing degradation, with the recommendation made to undertake a major refurbishment the Palm Beach West Boat Ramp Facility (the site) to meet relevant current day Australian Standards and Department of Transport Guidelines.

The applicant has received a Department of Transport Recreational Boating Facilities Scheme funding grant in September 2023 for the proposed upgrade of the boat ramp.

The proposed upgrade will involve the demolition and reconstruction of the existing Palm Beach West Boat Ramp facility. The reconstruction will include a slightly larger footprint to cater for an additional ramp lane and holding jetty and will have a reconfigured pedestrian access track to the adjacent beach on the eastern side.

Aboriginal sites of significance have been mapped within the application 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.

A search of the Department of Planning, Lands and Heritage (DPLH) database of Aboriginal Heritage places shows that a portion of the Palm Beach West Boat Ramp is located within the registered Aboriginal Heritage Site Rotary Park (Place ID 3471). This is a mythological site and extends to the shorelines at the boat ramps and adjacent foreshore areas. The proposed works may have a minor impact on the site. The applicant has scheduled a heritage site investigation has been scheduled with the South West Aboriginal Land and Sea Council (SWALSC) on behalf of the Gnaala Karla Boodja Aboriginal Corporation.

**End**

# Appendix A. Site characteristics

## A.1. Site characteristics

| Characteristic | Details |
|---|---|
| Local context | The vegetation proposed to be cleared is distributed across two small terrestrial areas and seven small (7) marine areas<br><br>Imagery indicates the local area is constrained by development (City of Rockingham) and much of the local areas includes marine habitats which have not been adequately mapped for vegetation extent. |
| Ecological linkage | The vegetation within the application area is not part of a mapped ecological linkage.<br><br>Clearing of the vegetation within the application area, both terrestrial and marine, will not sever any formal or informal ecological linkages. |
| Conservation areas | The site is located within Reserve 22779 which is an A class reserve vested with the City of Rockingham for the purposes of recreation. This reserve is highly modified and includes public open space, the palm beach west boat ramp, the palm beach east boat ramp and the terrestrial portion of the Palm Beach Jetty. |
| Vegetation description | **Terrestrial**<br>Vegetation at the site is within the mapped extent of the Quindalup vegetation complex, which is described as a 'coastal dune complex consisting of mainly two alliances – the strand and fore-dune alliance and the mobile sand and stable dune alliance. Local variations include the low closed forest of *Melaleuca lanceolate* (Rottnest Teatree) – *Callitris preissii* (Rottnest Island Pine), the closed scrub of *Acacia rostellifera* (Summer-scented wattle) and the low closed *Agonis flexuosa* (Peppermint) forest of Geographe Bay' (Heddle et al., 1980).<br><br>Vegetation within the project footprint to the west of the boat ramp is Tuart Open Woodland, with the vegetation to the east being Mixed Coastal Shrubland (City of Rockingham, 2022). No Tuart trees occur within the application area.<br><br>The site also contains an area of public open space consisting of a number of mature *Eucalyptus gomphocephala* (Tuart) trees, and planted *Araucaria heterophylla* (Norfolk Island Pine).<br><br>The mapped vegetation type (Quindalup complex) has not been extensively cleared (60.49% of its pre-European extent remaining on the Swan Coastal Plain).<br><br>**Marine**<br>A seagrass meadow consisting of *Posidonia* spp, is located adjacent to the project area. The extent of the seagrass meadow has been determined based on a comparison of aerial imagery with available mapping. Ground truthing to confirm the presence of seagrass was undertaken by City of Rockingham in 2024.<br><br>Photographs supplied by the applicant support the vegetation descriptions above. Representative photos and maps are available in Appendix D. |
| Vegetation condition | Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in degraded to good (Keighery, 1994) condition, described as:<br><br>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. |

| Characteristic | Details |
|---|---|
| | <table><tr><td>Degraded</td><td>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.</td></tr></table><br>The full Keighery (1994) condition rating scale is provided in Appendix C. Representative photos and maps are available in Appendix DD. |
| Climate and landform | The application area is located in the Perth metropolitan region which experiences a Mediterranean climate. Mean maximum temperatures range from 17.9°C to 27.5°C and mean minimum temperatures ranging from 11.2°C to 19.4°C. The average annual rainfall for the area is 612.5mm.<br><br>Strong winds are experienced from the southwest during summer afternoons with strong gusts occurring during winter storms.<br><br>The application area is located on the edge of the Western Australian coastline and include terrestrial and marine environments. |
| Soil description | The general geology of the site comprises of calcareous sand, with silts and clays at the base of the Cockburn Sound basin. |
| Land degradation risk | The calcareous sands within the application area are highly susceptible to wind erosion and the silts and clays within the marine environmental areas are highly susceptible to water erosion when disturbed. |
| Waterbodies | The application area is located at the edge of the Western Australian coastline, with some vegetation occurring adjacent to the coastline on each side (terrestrial and marine) |
| Hydrogeography | There are no sensitive water resources within the application area however the application area forms part of the Western Australia coastline. |
| Flora | One conservation significant flora species is recorded in the local area on the same soil and vegetation types as the application area. The closest record of this species is 450 metres south-west of the application area.<br><br>*Dodonaea hackettiana* is an erect shrub or tree growing to approximately 1-5 metres high. It has yellow-green/red flowers mainly occurring from July to October. This species is known to occur in sand and outcropping limestone habitats. The closest record of this species is recorded in *Acacia rostellifera* tall shrubland over *Melaleuca systena* in a dune of grey sand. The occurrence is within the Woodman Point Nature Reserve. |
| Ecological communities | No threatened or priority ecological communities were determined to occur within the survey area. The patch of tuart woodland identified to the west of the site was found to not meet the key diagnostic criteria as outlined in the conservation advice (Department of Environment and Energy, 2019) due to the small size and condition. |
| Fauna | **Terrestrial**<br>Vegetation within the application area would potentially provide habitat for six priority bird species, one priority mammal species and two priority reptile species (see section A.3.)<br><br>Fauna habitat to the west of the Palm Beach west boat ramp was recorded as open woodland, which provides important hunting habitat for birds of prey. The habitat to the east was recorded as coastal shrubs and heathland, which provides shelter and resources for mammals, reptiles and amphibians.<br><br>Public open space within the site was found to contain *Eucalyptus gomphocephala* (Tuart) trees with the potential to contain hollows for bird species in the future however they were not currently considered habitat trees for any of the three threatened black |

| Characteristic | Details |
|---|---|
| | cockatoo species (*Calyptorhynchus banksia naso* (Forest red tailed black cockatoo)*; Calyptohynchus lairostis* (Carnaby's Black Cockatoo); or *Calyptorhynchus baudinii* (Baudin's black cockatoo)) as their diameter at breast height is less than 500mm.<br><br>**Marine**<br>A variety of marine fauna species that typically occur within Cockburn Sound and therefore may occasionally be located within the site are summarised in section A.3. Given the shallow water depth and small extent of the site marine fauna are not likely to spend extensive time within the application area however the vegetation fits the definition of habitat for these species. |

## A.2. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E), 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] |
|---|---|---|---|---|---|---|---|
| Dodonaea hackettiana W.Fitzg. | Priority 4 | Y | Y | Y | 0.45 | 31 | N/A |

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

## A.3. Fauna analysis table

Extract from City of Rockingham (2022): Fauna likelihood table

| Species name | Common name | Type | Conservation code | Likelihood |
|---|---|---|---|---|
| *Actitis hypoleucos* | Common Sandpiper | Bird | IA/MI | Unlikely – prefers coastal wetlands and mudflats. No breeding areas in Australia |
| *Calidris alba* | Sanderling | Bird | IA/MI | Possible - Inhabits coastal areas with open sandy beaches and forages on the surface of waves or in shallow pools for plants, seeds, worms, crustacea, spiders, insects and occasionally fish and larger molluscs; no breeding habitat in Australia. |
| *Calidris tenuirostris* | Great Knot | Bird | T/CR | Possible - forage on mudflats and shallow water for invertebrates, worms, molluscs, crustaceans, insects; no breeding habitat in Australia |
| *Falco peregrinus* | Peregrine Falcon | Bird | S/OS | Possible – occurs in a range of habitats, usually coastal and inland cliffs or open woodland near water. Preys on small to medium-sized birds, diurnal mammals. |
| *Hydroprogne caspia* | Caspian Tern | Bird | IA/MI | Unlikely - No coastal embayment, or sheltered waters suitable for foraging for this species. No breeding habitat in Australia |
| *Pluvialis squatrola* | Grey Plover | Bird | IA/MI | Unlikely – no sheltered embayment, mudflats or sandflats; no areas highly vegetated with sedges. No breeding habitat in Australia |
| *Isoodon fusciventer* | Quenda | Mammal | P4 | Likely – Observed within application area |
| *Lerista lineata* | Perth Lined Lerista | Reptile | P3 | Likely – observed within application area |
| *Neelaps calontos* | Black striped burrowing snake | Reptile | P3 | Possible - poorly known species that is typically associated with Banksia woodlands but also sandy dunes in loose sandy soils that allow for burrowing. Known to forage on Worm Lizards (Aprasia spp. and Lerista spp.) |

| Marine fauna species | Common name | Conservation Status BC Act, EPBC Act, IUCN List | Likelihood (assessed for conservation significant species only) |
|---|---|---|---|
| Eudyptula minor | Little Penguin | Marine<br>Least Concern | Unlikely – depth of water does not support presence of this species. |
| Hyperlophus vittatus | Whitebait | Least Concern | |
| Neophoca cinerea | Australian Sea Lion | Endangered | Unlikely - Most colonies are found on the sheltered side of islands; some small colonies exist on the mainland but none are know to occur within the application area. |
| Lobodon carcinophagus | Crab-eater Seal | Least Concern | Unlikely – depth of water does not support presence of this species. |
| Arctocephalus forteri | New Zealand fur seal | Least Concern | Unlikely – depth of water does not support presence of this species. |
| Arctocephalus tropicalis | Sub-Antartic fur seal | Least Concern | Unlikely – depth of water does not support presence of this species. |
| Hydrurga leptonyx | Leopard seal | Least Concern | Unlikely – depth of water does not support presence of this species. |
| Pagrus auratus | Pink snapper | Least Concern | Possible – transient habitat |
| Portunus pelagicus | Blue Swimmer Crab | | Possible – transient habitat |
| Sillago sp. | Whiting | | Possible – transient habitat |
| Pomatomus saltatrix | Tailor | Vulnerable | Possible – transient habitat while on the summer run or while hunting prey however primary habitat is in deeper waters. |
| Arripis georgianus | Australian Herring | | Possible – transient habitat |
| Pseudocaranx dinjerra | Skipjack trevally | Least Concern | Possible – transient habitat |
| Glaucsoma hebracium | Dhufish | | Possible – transient habitat |
| Megaptera novaeangliae | Humpback whale | Vulnerable, Least Concern | Unlikely – depth of water does not support presence of this species |
| Eubalaena australis | Southern right whale | Endangered, Least Concern | Unlikely – depth of water does not support presence of this species |
| Tursiops truncatus | Bottlenose dolphin | Least Concern | Unlikely – depth of water does not support presence of this species |

## Appendix B. Assessment against the clearing principles

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---|---|
| **Environmental value: biological values** | | |
| Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."*<br>Assessment:<br>The area proposed to be cleared contains locally significant vegetation and habitat for conservation significant fauna. The small extent of native vegetation to be cleared is unlikely to have a significant long-term impact on these biological values.<br>The application area includes suitable habitat for *Dodonaea hackettiana* W.Fitzg. (Priority 4) flora. Given this species is a tall shrub (close records are 4-5 metres tall), it would be easily identifiable if present. Given the vegetation description and site photos provided by the applicant, it is unlikely this species occurs within the application area. | Not likely to be at variance | Yes<br>*Refer to Section 3.2.2, above.* |
| Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."*<br>Assessment:<br>The area proposed to be cleared contains habitat for conservation significant fauna. The small extent of native vegetation to be cleared is unlikely to have a significant long-term impact on the conservation status or persistence of these species locally or regionally. | May be at variance | Yes<br>*Refer to Section 3.2.1, above.* |
| Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."*<br>Assessment:<br>The area proposed to be cleared is unlikely to contain individuals or habitat for other flora species listed under the BC Act. | Not likely to be at variance | No |
| Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."*<br>Assessment:<br>Some of the area proposed to be cleared contains *Eucalyptus gomphocephala* (Tuart) trees that can indicate the presence of threatened ecological community Tuart Woodlands and Forests of the Swan Coastal Plain (Critically Endangered). The small extent of native vegetation to be cleared and condition of the vegetation mean the patch do meet the diagnostic criteria but not the patch size required to be considered as representative of this threatened ecological community. No Tuart trees are proposed to be cleared. | Not likely to be at variance | Yes<br>Refer to Section 3.2.2 |
| **Environmental value: significant remnant vegetation and conservation areas** | | |
| Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."*<br>Assessment:<br>The extent of the mapped terrestrial vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area. | Not likely to be at variance | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|---|---|
| There are no target objectives for the extent of seagrass in Western Australia, however given the small extent of clearing it is unlikely that the seagrass vegetation within the application area is significant as a remnant. | | |
| Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."*<br><br>Assessment:<br><br>The application area is located within Reserve 22779 which is an A class reserve vested with the City of Rockingham for the purposes of recreation. This reserve is highly modified and includes public open space, the palm beach west boat ramp, the palm beach east boat ramp and the terrestrial portion of the Palm Beach Jetty. The proposed clearing is not likely to have an impact on the environmental values of the A class recreation reserve to a greater extent than current land uses already impact the environmental values of the site. | Not likely to be at variance | No |
| **Environmental value: land and water resources** | | |
| Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."*<br><br>Assessment:<br><br>No water courses or wetlands are recorded within the application area however the application area is part of the Western Australian coastline. The vegetation within the application area is growing in association with a water resource however the small extent of the clearing and applicants' commitment to avoid trees where possible, mean that impacts to water resources are unlikely. | Not likely to be at variance | No |
| Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."*<br><br>Assessment:<br><br>The mapped soils are highly susceptible to wind and water erosion given the proximity to the Western Australian coastline. Noting the small extent and divided nature of the application area, the proposed clearing may lead to appreciable land degradation if not properly managed.<br><br>The applicant has committed to a number of mitigation and management measures to reduce the environmental impact of wind and water erosion (see section 3.2.3). | May be at variance | Yes<br><br>*Refer to Section 3.2.3, above.* |
| Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."*<br><br>Assessment:<br><br>Given no sensitive water resources are recorded within the application area and given the small extent of the clearing, the proposed clearing is unlikely to impact surface or ground water quality. | Not likely to be at variance | No |
| Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."*<br><br>Assessment:<br><br>The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.<br><br>Given the coastal sands associated with the application area, the proposed clearing is unlikely to contribute to waterlogging. | Not likely to be at variance | No |

## Appendix C. Vegetation condition rating scale

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

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

**Measuring vegetation condition for the 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 D. Aerial images, site plan and photographs of the vegetation

Extract from the City of Rockingham Palm Beach Boat Ramp West Redevelopment Environmental Management Plan (2024)

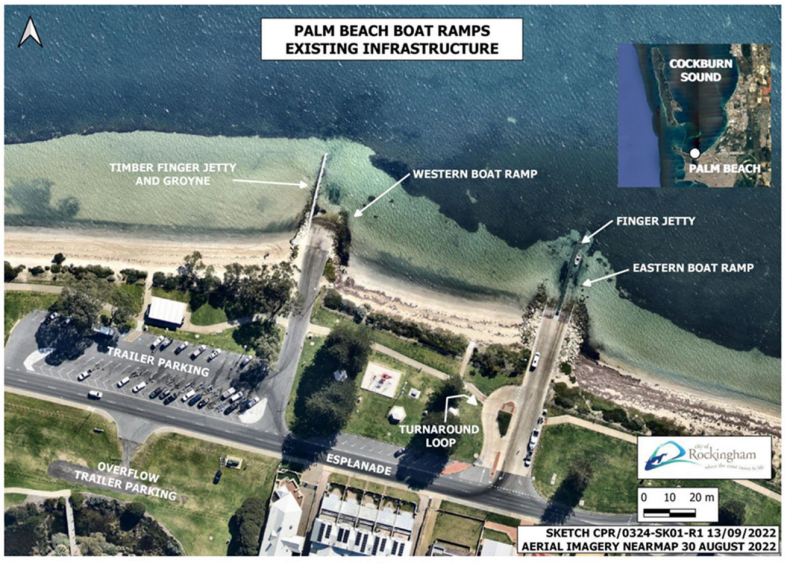


Figure 1 Existing Infrastructure

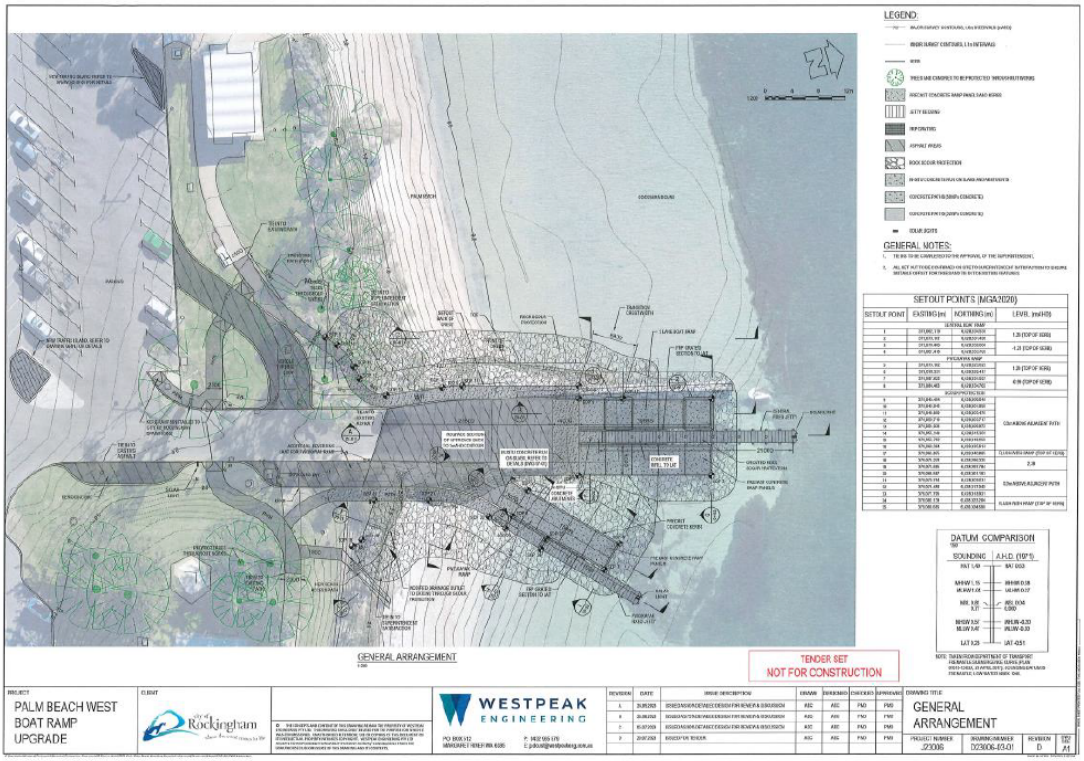


Figure 2 General arrangement for refurbished Palm Beach West Boat Ramp Facility

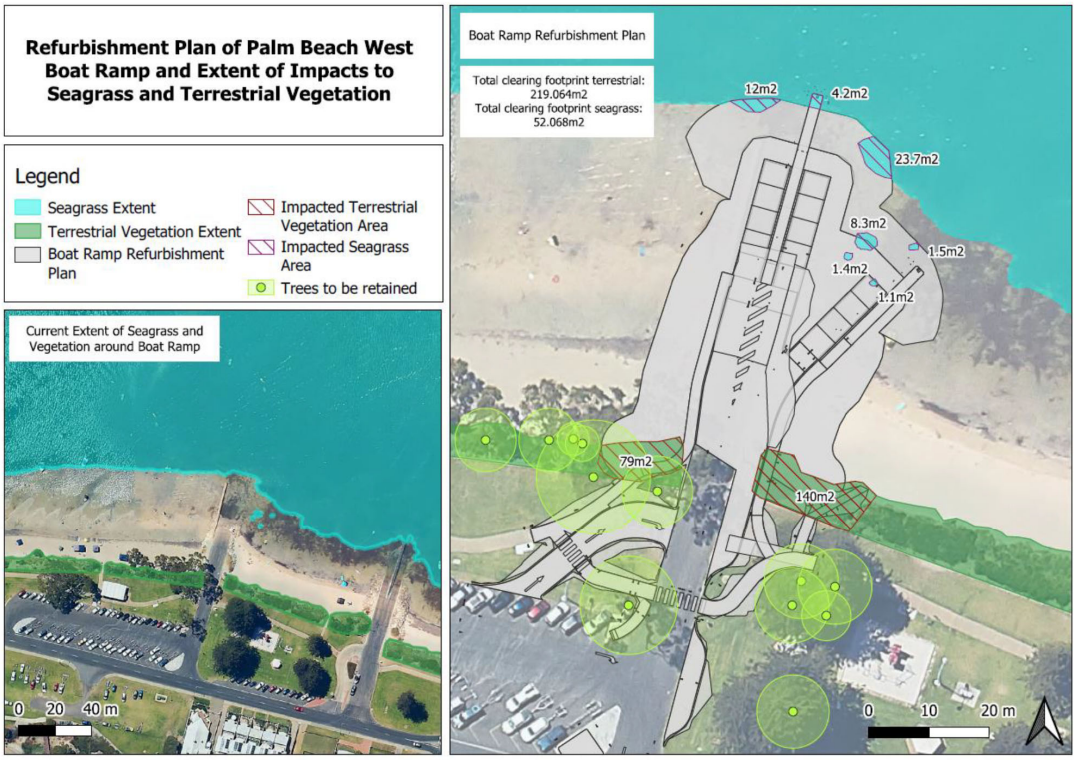


Figure 3: Clearing footprint

**Photographs of the application area provided by the applicant (City of Rockingham, 2024)**

***Note: Large trees on the grass side of the fence will not be impacted by the proposed clearing**

# Appendix E. Sources of information

## E.1. GIS databases

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

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

Restricted GIS Databases used:

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

## E.2. References

City of Rockingham (2024) *Clearing permit application and supporting information CPS 10843/1*, received 11 November 2024 (DWER Ref: DWERDT1037862).

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Department of Environment Regulation (DER) (2013). *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.

Department of Primary Industries and Regional Development (DPIRD) (2019). *NRInfo Digital Mapping. Department of Primary Industries and Regional Development*. Government of Western Australia. URL: https://maps.agric.wa.gov.au/nrm-info/ (accessed 10 March 2025).

Department of Water and Environmental Regulation (DWER) (2019). *Procedure: Native vegetation clearing permits*. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.PDF.

Government of Western Australia (2019) *2018 South West Vegetation Complex Statistics. Current as of March 2019*. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia. (2019) *2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019.* WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Heddle, E. M., Loneragan, O. W., and Havel, J. J. (1980) *Vegetation Complexes of the Darling System, Western Australia*. In Department of Conservation and Environment, Atlas of Natural Resources, Darling System, Western Australia.

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Mattiske, E.M. and Havel, J.J. (1998) *Vegetation Complexes of the South-west Forest Region of Western Australia.* Maps and report prepared as part of the Regional Forest Agreement, Western Australia for the Department of Conservation and Land Management and Environment Australia.

Molloy, S., Wood, J., Hall, S., Wallrodt, S. and Whisson, G. (2009) *South West Regional Ecological Linkages Technical Report*, Western Australian Local Government Association and Department of Environment and Conservation, Perth.

Northcote, K. H. with Beckmann G G, Bettenay E., Churchward H. M., van Dijk D. C., Dimmock G. M., Hubble G. D., Isbell R. F., McArthur W. M., Murtha G. G., Nicolls K. D., Paton T. R., Thompson C. H., Webb A. A. and Wright M. J. (1960-68) *Atlas of Australian Soils*, Sheets 1 to 10, with explanatory data. CSIRO and Melbourne University Press: Melbourne.

Schoknecht, N., Tille, P. and Purdie, B. (2004) *Soil-landscape mapping in South-Western Australia – Overview of Methodology and output*s Resource Management Technical Report No. 280. Department of Agriculture.

Shah, B. (2006) *Conservation of Carnaby's Black-Cockatoo on the Swan Coastal Plain, Western Australia*. December 2006. Carnaby's Black-Cockatoo Recovery Project. Birds Australia, Western Australia.

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status*. Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Valentine, L.E. and Stock, W. (2008) *Food Resources of Carnaby's Black Cockatoo (Calyptorhynchus latirostris) in the Gnangara Sustainability Strategy Study Area*. Edith Cowan University and Department of Environment and Conservation. December 2008.

Western Australian Herbarium (1998-). *FloraBase - the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 10 March 2024)