



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 10450/1
Permit Holder:	Rottnest Island Authority
Duration of Permit:	From 14 December 2024 to 14 December 2039

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

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of constructing staff housing.

2. Land on which clearing is to be done

Lot 10976 on Deposited Plan 216860, Rottnest Island

3. Clearing authorised

The permit holder must not clear more than 3.29 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 14 December 2029.

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

8. Wind erosion management

The permit holder must commence construction activities no later than three (3) months after completion of the authorised clearing activities to reduce the potential for wind erosion.

9. Fauna management

- (a) In relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must engage a *fauna specialist* to inspect that area immediately prior to, and for the duration of clearing activities, for the presence of the following fauna species:
 - (i) *Setonix brachyurus* (quokka)
 - (ii) *Tiliqua rugosa konowi* (Rottnest Island bobtail)
- (b) Clearing activities must cease in any area where fauna referred to in condition 9(a) are identified until either:
 - (iii) the fauna individual has moved on from that area to adjoining *suitable habitat*; or
 - (iv) the fauna individual has been removed by a *fauna specialist*.
- (c) Any fauna individual removed in accordance with condition 9(b)(ii) must be relocated by a *fauna specialist* to a *suitable habitat*.
- (d) Where fauna is identified under condition 9(a), the permit holder must within 14 calendar days provide the following records to the *CEO*:
 - (v) the number of individuals identified;
 - (vi) the date each individual was identified;
 - (vii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 2020 (GDA2020), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
 - (viii) the number of individuals removed and relocated;
 - (ix) the relevant qualifications of the *fauna specialist* undertaking removal and relocation;

- (x) the date each individual was removed;
- (xi) the method of removal;
- (xii) the date each individual was relocated;
- (xiii) the location where each individual was relocated to, recorded using a GPS unit set to GDA2020, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and
- (xiv) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

10. Offset - Revegetation and rehabilitation

Within 24 months of commencing *clearing* authorised under this permit, and no later than 14 December 2029, the permit holder must *revegetate* and *rehabilitate* native vegetation within the areas cross-hatched red in Figure 2 of Schedule 1 of this permit by implementing and adhering to the *Revegetation Plan* prepared by Rottnest Island Authority (2024), including but not limited to the following actions:

- (a) undertake *planting* with species listed in Table 3 of Schedule 2:
 - (i) at the density specified in Table 3 of Schedule 2;
 - (ii) at an *optimal time*; and
 - (iii) using only *local provenance* propagating material;
- (b) establish either tree guards or fencing around *plantings* such that they are protected from grazing;
- (c) implement hygiene protocols by cleaning earth-moving machinery of soil and vegetation prior to entering and leaving the *rehabilitation* areas;
- (d) undertake *weed* control activities to maintain the minimum completion criteria specified in Table 4 of Schedule 2;
- (e) establish at least five 10 x 10 metre quadrat monitoring sites within rehabilitated areas;
- (f) undertake monitoring of the areas *revegetated* and *rehabilitated* under condition 10 of this permit by an *environmental specialist* in accordance with Table 4 of Schedule 2 until the completion criteria listed in Table 4 of Schedule 2 have been met;
- (g) undertake remedial actions for *revegetation* and *rehabilitation* areas where monitoring indicates the completion criteria, outlined in Table 4 of Schedule 2, have not been met including:
 - (i) further *planting* of *native vegetation* that will result in the completion criteria specified in Table 4 of Schedule 2 being met, ensuring only using only *local provenance* propagating material of species listed in Table 3 of Schedule 2 are used;
 - (ii) further *weed* control activities;
 - (iii) further monitoring of the *revegetated* and *rehabilitated* areas by an *environmental specialist*, until the completion criteria in Table 4 of Schedule 2 are met.
- (h) where a determination is made by an *environmental specialist* that the completion criteria in Table 4 of Schedule 2 are met, that determination shall be submitted to the CEO within three months of the determination being made by the *environmental specialist*.

PART III - RECORD KEEPING AND REPORTING

11. 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 size of the area cleared (in hectares); and (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 5; and (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with condition 6; and (g) actions taken in accordance with condition 7; and (h) actions taken in accordance with condition 8; and (i) actions taken to manage and mitigate impacts to fauna in accordance with condition 9.
2.	In relation to offset management, pursuant to condition 10	<ul style="list-style-type: none"> (a) the location and boundaries of the offset areas (recorded digitally as a shapefile) subject to condition 10; and (b) actions undertaken in accordance with condition 10.

12. Reporting

The permit holder must provide to the *CEO* the records required under condition 11 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.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has a minimum of two (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.
fauna specialist	means a person who holds a tertiary qualification specialising in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, or who is approved by the CEO as a suitable fauna specialist for the bioregion, and who holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .
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)
local provenance	means native vegetation seeds and propagating material from natural sources within 50 kilometres 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.
optimal time	means the optimal time for undertaking direct seeding and planting for that region.
planting(s)/plant	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species
rehabilitate/rehabilitated/rehabilitation	means actively managing an area containing native vegetation in order to improve the ecological function of that area.
revegetate/ed/ing/ion	means the re-establishment of a cover of <i>local provenance native vegetation</i> in an area using methods such as natural regeneration, direct seeding and/or <i>planting</i> , so that the species composition, structure and density is similar to pre-clearing vegetation types in that area.
Revegetation Plan	means the <i>Parker Point Road (East) Staff Housing Revegetation Management Plan</i> produced by Rottnest Island Authority for this permit and approved by the CEO (Rottnest Island Authority, 2024).
weeds	means any plant –

Term	Definition
	<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



Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

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

21 November 2024

Schedule 1

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



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

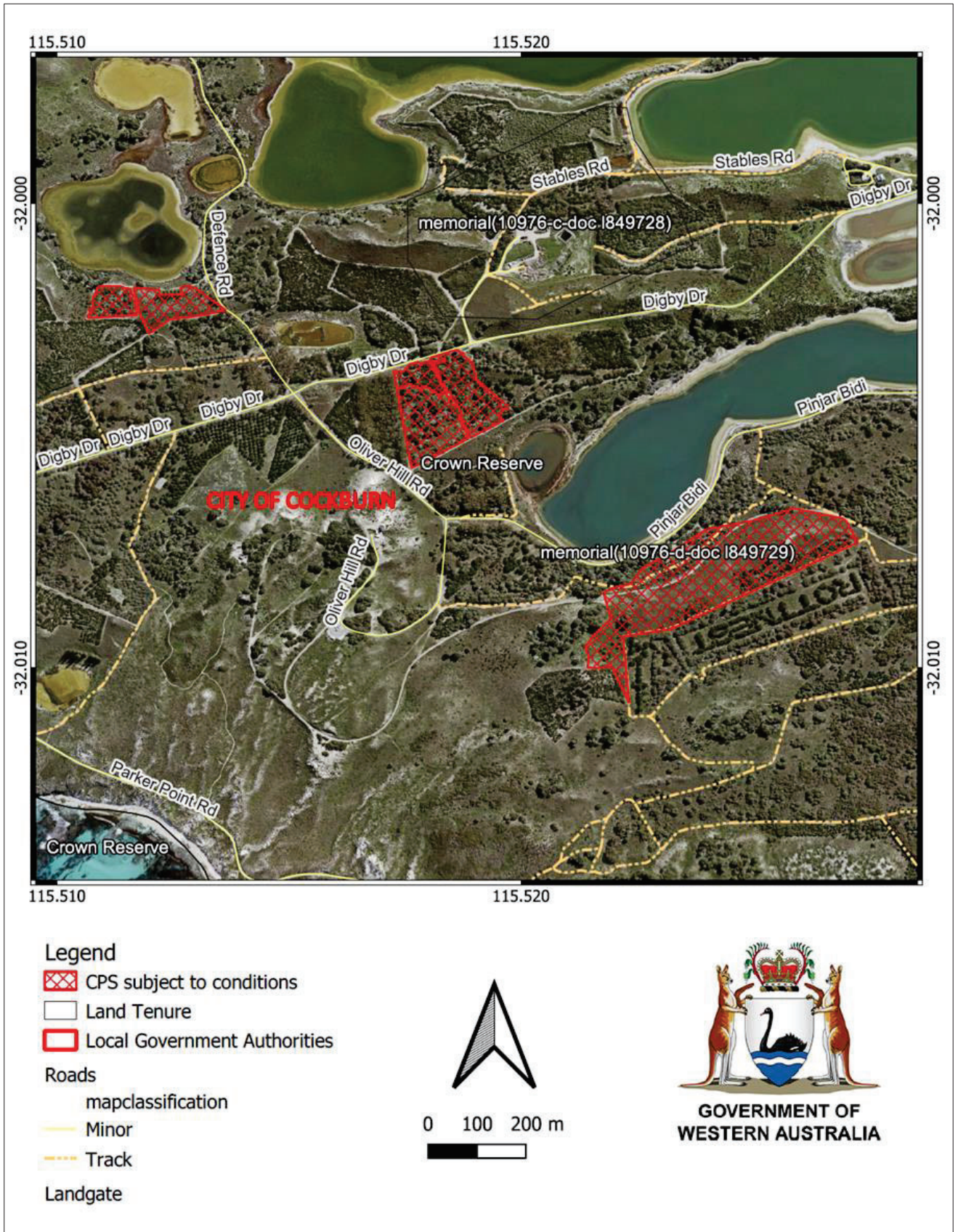


Figure 2: Map of the boundary of the offsets sites within which conditions apply

Schedule 2

Table 3. Target species for revegetation

Species name	Common name	Species type	Species density
<i>Callitris preissii</i>	Rottnest Island pine	dominant tree species	1 stem per 5 square metres (0.2 plants per square metre) (all species), or at a rate consistent with the existing vegetation density.
<i>Melaleuca lanceolata</i>	Rottnest Island teatree	dominant tree species	
<i>Acanthocarpus preissii</i>	prickle lily	understory species	as considered necessary
<i>Rhagodia baccata</i>	berry saltbush	understory species	as considered necessary
<i>Austrostipa flavescens</i>	coast spear-grass	understory species	as considered necessary
<i>Trachymene pilosa</i>	native parsnip	understory species	as considered necessary
<i>Guichenotia ledifolia</i>		understory species	as considered necessary

Table 4. Completion criteria for revegetation and rehabilitation

Aspect	Completion criteria	Monitoring frequency
1) Species richness	Each 10 m x 10 m monitoring site includes at minimum two dominant tree species, in addition to understory species listed in Table 3 after both five years and ten years after planting.	Species richness in monitoring sites will be monitored at one, three, five years and ten years after planting.
2) Species density	The rehabilitation area needs to ensure a density of at least minimum 1,000 stems per hectare, which includes a minimum of 200 stems per hectare of dominant tree species.	The number of surviving stems of dominant tree species and understory species in the revegetation areas will be monitored at one, three, five years and ten years after planting.
3) Vegetation condition	Vegetation in each 10 m x 10 m monitoring site must be in a Good to Very good (Keighery, 1994) or higher condition after both five years and ten years after planting.	Vegetation condition in monitoring sites will be monitored at one, three, five years and ten years after planting.
4) Weeds	No declared weeds regulated under the <i>Biosecurity and Agriculture Management Act 2007</i> to be present within the rehabilitation area five years of planting.	Weeds in the revegetation areas will be monitored at one, three, five years and ten years after planting.



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 10450/1
Permit type:	Purpose permit
Applicant name:	Rottnest Island Authority
Application received:	11 December 2023
Application area:	3.29 hectares
Purpose of clearing:	Construction of staff housing
Method of clearing:	Mechanical clearing
Property:	Lot 10976 on Deposited Plan 216860
Location (LGA area/s):	City of Cockburn
Localities (suburb/s):	Rottnest Island

1.2. Description of clearing activities

The vegetation is contained within a 3.29-hectare contiguous area (see Figure 1, Section 1.5), with the proposed clearing to support the building of critical accommodation for workers employed by businesses on Rottnest Island (RIA, 2023). It is noted that the State government having committed funding of \$98.5 million as part of the 2024-25 State budget over the next eight years for the planning and development of new staff accommodation on Rottnest Island.

1.3. Decision on application

Decision:	Granted
Decision date:	21 November 2024
Decision area:	3.29 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 one submission was received. Consideration of matters raised in the public submission is summarised in Appendix B.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix C), relevant datasets (see Appendix I.1), the findings of a flora and vegetation surveys (see Appendix G and Appendix H), the clearing principles set out in Schedule 5 of the EP Act (see Appendix D), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The assessment identified that the proposed clearing will result in:

- an impact to the '*Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands of the Swan Coastal Plain Threatened Ecological Community (TEC) - floristic community type 30a as originally described in Gibson et al. (1994)' (SCP30a);

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- impacts to habitat for threatened and priority fauna species.

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 can be minimised and managed through conditions on the permit, including the provision of an offset (see Section 4), such that it is unlikely to lead to an unacceptable risk to environmental values.

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

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- works to commence within three (3) months after completion of the authorised clearing activities to reduce the potential for wind erosion;
- inspect the application area prior to clearing for quokka and Rottnest Island bobtail and relocate any fauna individuals found;
- implement a revegetation offset as described in Section 4.

1.5. Site map



Figure 1 Map of the application area

The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

2 Legislative context

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

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

- the precautionary principle
- the principle of intergenerational equity
- the polluter pays principle
- 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)
- *Rottnest Island Authority Act 1987* (WA) (RIA Act)

Relevant policies considered during the assessment include:

- *Environmental Offsets Policy* (2011)

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)
- *Environmental Offsets Guidelines* (August 2014)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

It is acknowledged that the Rottnest Island Authority (RIA) are responsible under the *Rottnest Island Authority Act 1987* (RIA Act) for the conservation and protection of the island's flora and fauna, while providing tourism facilities and experiences. The areas within the settlement are limited for development, with selection of the development site and the ability to develop fundamentally constrained by the RIA Act which limits accommodation to the settlement area only (see Section 3.2.3).

The application area (Parker Point Road site) was selected to facilitate the development of staff housing for the following reasons:

- existing staff housing is located on Parker Point Road - locating staff housing in one location demonstrates proper and orderly planning;
- location will be in close proximity to the future operational base of the island's maintenance contractor;
- location is within the prescribed settlement boundary, which is approved for development;
- location can utilise existing water infrastructure on Parker Point Road and scheduled electrical upgrade on Parker Point Road;
- location is identified in the Rottnest Island Management Plan 2023-2028 Land Use Plan as 'Mixed Use'."

The applicant considered several sites in determining a suitable site for the workers accommodation on Rottnest Island. Various factors were considered in the site selection process, including

- the settlement boundary (no buildings to be constructed outside of settlement boundary);
- outside of known environmentally sensitive areas;
- outside of known state heritage registered areas;
- proximity to the lodge redevelopment and samphire resort to reduce the need for transport between the sites (walking distance - reduced congestion management);
- connectivity to sewer;
- connectivity to water;
- connectivity to 3 phase power.

	Within settlement boundary	Outside known ESAs	Outside known heritage areas	Proximity to Rottnest Hotel and Samphire	Connectivity to sewer	Connectivity to water	Connectivity to 3 phase power	Total Score
Parker Point Road	5	3*	5	3	4	4	4	28
Garden Lake	5	1	5	3	1	1	1	17
Geordie Bay	5	5	5	2	1	1	1	20
PFM Yard	5	1	3	5	3	3	3	26

*Cannot be developed due to Bushfire constraints and partially within an ESA.

The site of Parker Point Road (application area) met all the necessary site selection criteria as set out above.

The applicant provided further information regarding the environmental factors that were considered prior to selecting the proposed clearing site.

- Proximity to ESAs:** the ESA associated with Bickley Swamp intersects the southern site boundary, however, RPS (2023) concluded that the clearing and proposed development are not likely to impact Bickley Swamp due to the presence of the rail line and implementation of a CEMP. The application area was second ranked in terms of proximity to ESAs. The Geordie Bay site was ranked higher on this factor but the overall score for Geordie Bay was lower due to other factors including proximity to underground services. The two other potential sites (Garden Lake and PFM Yard) were located very close to listed ESAs/PECs and would have resulted in significant impacts to these sensitive receptors.
- Proximity to work areas:** future land use planning identified that the facility maintenance contractor operational yard will be relocated in the vicinity of the Parker Point Road site, and near to the airport. Locating staff housing in close proximity to the operational yard will assist with the reduction of transport emissions for staff commuting.
- Proximity to underground services:** The Parker Point Road site was ranked highest compared to the other alternative sites in terms of connections to underground services including sewer, electricity and water. Installation of underground services requires significant energy and resources therefore ensuring minimal distance for connections results in fewer carbon emissions and waste.

RIA has provided a commitment to develop a Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) for the application area which will include:

- vegetation clearing will be minimised where possible.
- the clearing area required will be demarcated prior to clearing to ensure no over clearing and ensure protection of the adjacent registered heritage site.
- clearing will be conducted in a way which will allow fauna to vacate.
- surface water management measures to ensure that no surface water leaves site (to infiltrate) and erosion control measures.
- there is no wetland vegetation within the proposed planned clearing area.
- all works will be retained within the clearing footprint.
- a 5m buffer is in place from the rail centreline to ensure compliance with all rail safety legislation.
- management of fauna during clearing and during operational times.
- management of bushfire protection zones.
- BAL assessment requirements

The applicant also addressed the potential for secondary impacts on the SCP30a TEC (refer to Section 3.2.2 for further details) adjacent to the area which is proposed to be cleared. RIA developed a protocol for Weed Management as part of the Revegetation Management Plan for CPS 10450/1 for the offset sites associated with the Clearing Permit (see section 4) and also the area of remnant vegetation located between the CPS 9883/1 and CPS 10450/1 clearing areas.

Additional measures that RIA will implement to mitigate potential impacts to the TEC located between the CPS 9883/1 and CPS 10450/1 clearing areas include:

- signage;
- exclusion fencing where appropriate.

Based on DBCA advice (2024), the applicant proposed further mitigation measures by commissioning a consultant (Emerge, 2024) (see Appendix H) to identify and map other SCP30a TEC occurrences on Rottnest Island that can be revegetated and managed to improve the TEC occurrences (see Section 4). The identification of the additional TEC occurrences by Emerge has reduced the cumulative impacts of the proposed clearing on SCP30a occurrences on Rottnest Island.

Applicant has also committed to commence construction no later than three (3) months after completion of clearing activities to mitigate any risk of wind erosion.

Noting the above, the Delegated Officer was satisfied that the applicant has made undertaken reasonable measures to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

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

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

3.2.1. Biological values (fauna) - Clearing Principles (a) and (b)

Assessment

The following conservation significant fauna species may utilise vegetation within the application area as habitat:

- *Setonix brachyurus* (quokka) (Vulnerable)
- *Tiliqua rugosa konowi* (Rottnest Island bobtail) (Vulnerable)
- *Idiosoma sigillatum* (Swan Coastal Plain shield-backed trapdoor spider) (Priority 3)
- *Lerista lineata* (Perth slider, lined skink) (Priority 3)
- *Pseudonaja affinis exilis* (Rottnest Island dugite) (Priority 4)

Quokka: Rottnest Island supports the largest known population of this mammal. Rottnest Island staff, and the RPS botanist who walked over the site, observed Quokka scats within the site and it is likely that suitable habitat for this species is present within the site (RIA, 2023).

Despite the high level of disturbance on Rottnest Island, the species' population on the island is large compared to that on the mainland (estimated as between 8,000-12,000 individuals in 2012) (DEC, 2013) and the island population is considered resilient to current levels of disturbance (DCCEEW, n.d.). As such, it is considered that the proposed clearing is unlikely to result in impacts to the conservation status of quokka. Impacts to individuals that may be utilising the habitat at the time of clearing will be mitigated through fauna management conditions on the permit.

Rottnest Island bobtail: this species prefers coastal habitats, however, likely uses the site for general habitat. The bobtail has been observed at the site (RIA, 2023). However, noting Rottnest Island retains approximately 75% remnant vegetation, it is considered that the proposed clearing is unlikely to result in impacts to the conservation status of Rottnest Island bobtail. Impacts to individuals will be mitigated through fauna management conditions on the permit.

Swan Coastal Plain shield-backed trapdoor spider: this species occurs from Dalyellup in the south to Gingin in the north and east to the Darling Scarp and includes Rottnest and Garden Islands. It is unlikely to occupy its full range due to urbanisation and habitat loss. Burrows usually occur in Banksia woodland and heathland on sandy soils. As the proposed clearing area is on sandy soil, this species may occur in the application area (RIA, 2023). However, as Rottnest Island retains approximately 75% remnant vegetation, it is considered that the proposed clearing is unlikely to result in impacts to the conservation status of the Swan Coastal Plain shield-backed trapdoor spider.

Perth Slider: The Perth Slider has rarely been observed on Rottnest Island and at one point was documented as 'possibly extinct' (Maryan et.al., 2015), however during a targeted search in 2019 it was recorded on the island for the first time since 1986, in *Acacia rostellifera* scrub (RIA, 2022). Given that *Acacia rostellifera* was noted in the proposed clearing area, it is possible that this species utilises the area. As Rottnest Island retains approximately 75% remnant vegetation, it is considered that the proposed clearing is unlikely to result in impacts to significant habitat, or the conservation status of Perth Slider.

Rottnest Island dugite: Dugites live in abandoned burrows or hollow logs and prefer coastal habitat, limestone heath, woodland and the Settlement area of the Island. (RIA, 2023). Habitat for this species may occur within the application area. However, noting Rottnest Island retains approximately 75% remnant vegetation, it is considered that the proposed clearing is unlikely to result in impacts to the conservation status of Rottnest Island dugite or impact on significant habitat. Impacts to individuals will be mitigated through fauna management conditions on the permit.

Conclusion

Based on the above assessment, the proposed clearing is unlikely to result in impacts to the conservation status of these species or on significant habitat for these species. Impacts to individuals can be mitigated through conditions placed on the permit.

Conditions

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

- slow, directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals.
- inspect application area prior to clearing for quokka and Rottnest Island bobtail and relocate any fauna individuals found.

3.2.2. Biological values (vegetation) - Clearing Principles (a) and (d)

The application area contains 3.29 hectares of vegetation analogous with the *Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands of the Swan Coastal Plain TEC (SCP30a), in Degraded to Very Good (Keighery, 1994) condition (RIA, 2024a).

SCP30a is a Critically Endangered TEC which is highly restricted. It occurs in urban coastal areas close to Perth, Garden Island and Rottnest Island. Occurrences are threatened by vegetation clearing, weed invasion, too frequent fire, hydrological change, grazing and recreation. This TEC is at a high risk of extinction due to current and future threats.

As per the available datasets (DBCA, 2024) and supporting information (Emerge, 2024) for CPS 10450/1, SCP30a is known from approximately 58 occurrences with a total area of 687.34 hectares in Western Australia. Rottnest Island makes up 11.5% of the total area known in WA. The occurrences on Rottnest Island are unique in the sense they have the benefit of the protection of being within a Class A Nature Reserve. The SCP30a TEC occurrences on Rottnest Island are 79.18 hectares in size.

DBCA advised that the proposed works will directly clear 3.29 hectares of this occurrence, but the actual impact is likely to be greater. Secondary impacts will result in the degradation of the vegetation which occurs between CPS 9883/1 and CPS 10450/1, resulting in the potential total loss of 7.1 hectares of the occurrence (see figure 2). Of the 7.1 hectares which may potentially be impacted by the proposed clearing, 4.9 hectares is in very good condition and less than 50% of the remaining occurrence will be considered in good or good to very good condition (46%). The cumulative impact from CPS 9883/1 and CPS 10450/1 will potentially result in the loss of 9.37 hectares of TEC SCP30a, representing 1.36% of the total occurrence in Western Australia and 11.83% of the known occurrences on Rottnest Island. The proposed clearing poses a moderate risk to the occurrence of the SCP30a TEC and targeted mitigation actions can assist in the continued persistence of the TEC occurrence (DBCA, 2024).

Noting DBCA's advice, the applicant conducted further surveys to identify additional occurrences of the SCP30a TEC on the Rottnest Island that could be revegetated to promote the long-term persistence of the SCP30a TEC on Rottnest Island (see Appendix H). The survey (Emerge, 2024) was conducted in three areas on Rottnest Island. All three survey areas contained vegetation described as comprising vegetation unit MICp - low open to closed woodland or shrubland of *Melaleuca lanceolata* and *Callitris preissii* over open to closed forbland of *Acanthocarpus preissii*, *Rhagodia baccata* subsp. *dioica*, *Poa poiformis* and *Austrostipa flavescens* on sand, often with underlying and/or outcropping limestone. The MICp vegetation represents SCP30a TEC as it contains key indicator species *Callitris preissii* and/or *Melaleuca lanceolata* and meets the TEC description. Approximately 22.80 hectares of

vegetation representative of SCP30a TEC was identified within the three survey areas. The survey further reported surrounding areas to contain similar vegetation dominated by *Melaleuca lanceolata* and *Callitris preissii*.

Conclusion

Based on the above assessment, the proposed clearing will result in the clearing of a 3.29-hectare area of the SCP30a TEC in Degraded to Very Good condition and potential cumulative impacts to approximately 7.1 hectares of the TEC. The proposed clearing will result in fragmentation of the existing SCP30a TEC patch.

Conditions

- The impacts of this clearing will be mitigated by a revegetation offset required as a condition of the permit (refer to Section 4).

3.2.3. Conservation areas - Clearing Principle (h)

Assessment

The application area is within Rottnest Island, a Class A reserve for the purpose of 'public recreation' as registered in 2003 under the *Land Administration Act 1997*. Under the provisions of the RIA Act, the control and management of the Island is vested in the RIA. The RIA Act also defines the 'settlement area', which includes areas zoned under the Draft Rottnest Island Management Plan 2023-2028 as 'mixed use', in which the application area is within (RIA, 2023d). The purpose of this zone is to provide for residential and or leisure and or commercial uses, accommodation for seasonal and short-term workers and to facilitate the use, development and redevelopment of land in accordance with the existing or preferred character of the area, whereas conservation is a key function of the 'reserve' zoned portion of the island (RIA, 2023d). Hence, while RIA should still consider the environmental impacts of the proposed clearing, noting that conservation is not the primary purpose of the portion of the island encompassing the application area, the proposed clearing is not considered likely to significantly impact the values of the Rottnest Island reserve overall. Weed and dieback management conditions will mitigate impacts to adjacent vegetation within the reserve.

Conclusion

Rottnest Island is a Class A reserve, with the purpose of the clearing for staff accommodation compatible with the 'mixed use' zoning in this area of the island. While the clearing will impact on environmental values within the application area itself, it will not impact environmental values within other sections of the island which are zoned as 'reserve' and managed for conservation purposes,

Conditions

- Weed and dieback management condition.

3.3. Relevant planning instruments and other matters

The City of Cockburn (the City) had no objections regarding the development proposed under CPS 10450/1. The City advised that while the application area is within the boundaries of the City of Cockburn, development applications on Rottnest Island are determined by the Rottnest Island Authority under the *Rottnest Island Authority Act 1987* (City of Cockburn, 2024).

Noting that the clearing will modify a threatened ecological community, the applicant requires an authorisation under section 45 of the BC Act from DBCA prior to undertaking the proposed clearing. It is understood RIA has applied for this authorisation (RIA, 2024a).

Advice received from DWER's Water Licencing branch indicated that the Rottnest Island Authority currently hold groundwater licences for the supply of water for public scheme and if water for construction purposes was required, it would be sourced from the existing licensed bore network as RIA holds a large allocation for the supply of water for the island (DWER, 2024).

Several Aboriginal sites of significance have been mapped within the application area (RIA, 2024a). It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

4 Suitability of offsets

Noting DBCA advice (see Section 3.2.2) and having regard to the WA Environmental Offsets Guidelines (2014) and WA Environmental Offset Policy (2011), DWER considers it important that the offset proposal is relevant not only to the environmental value being impacted, but also to the associated attributes which may be lost or are at risk. The impacts to an environmental value are required to be offset by actions that benefit the same environmental value being impacted. As such, DWER considers on-ground management actions within existing occurrences of SCP30a TEC on Rotttnest Island and revegetation to buffer an existing occurrence of SCP30a TEC to be appropriate offset actions.

While an existing TEC occurrence is mapped to the south of the proposed clearing area (see pink polygon in Figure 2), RIA advised that the south of the proposed clearing area includes operational areas and on-ground management within this area may not be viable. The applicant commissioned surveys over other areas of the island to identify any other potential TEC occurrences that may be suitable for rehabilitation as an offset (see Section 3.2.2 and Appendix H).

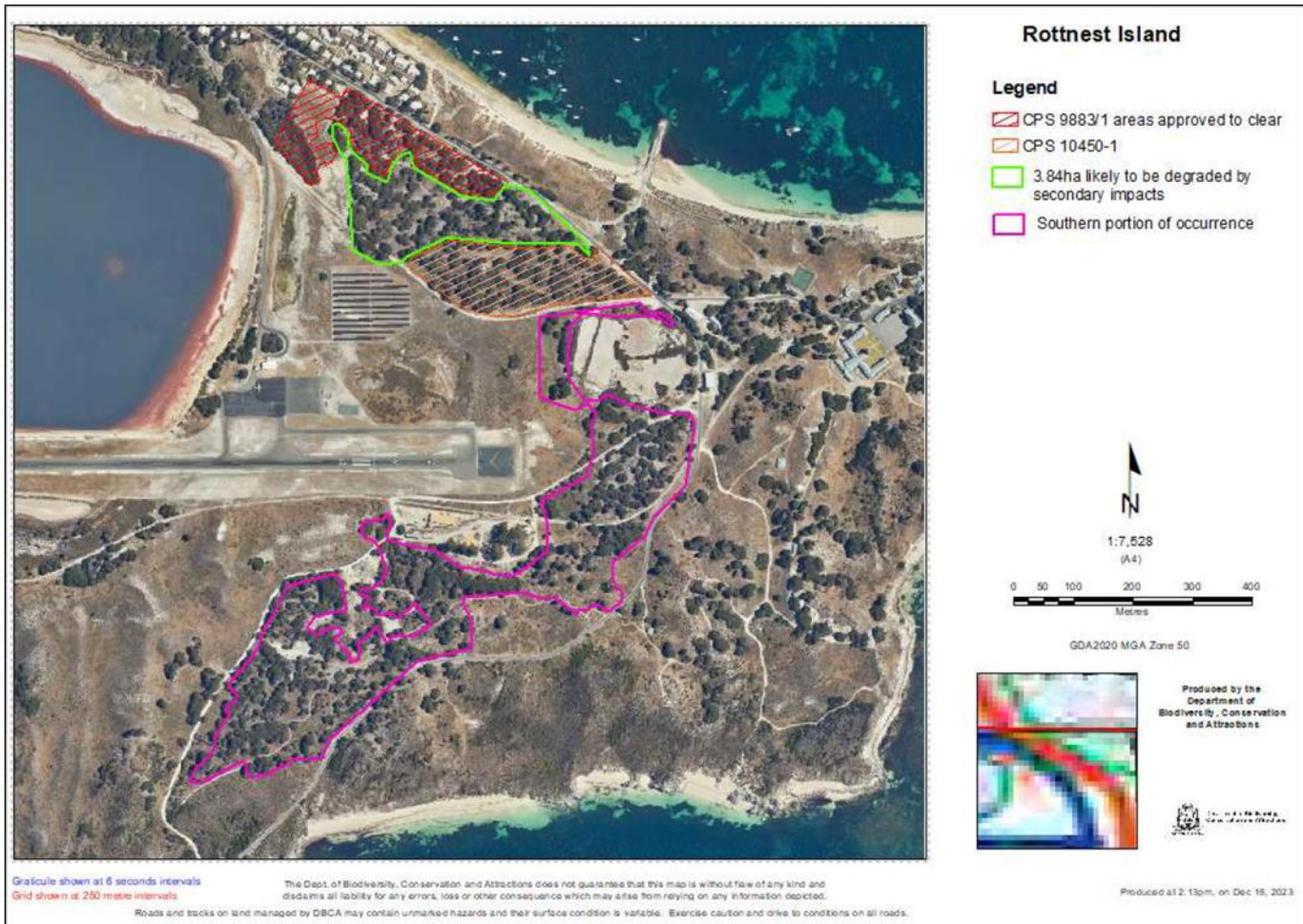


Figure 2: Map indicates the SCP30a TEC occurrence north and south of the application area (DBCA, 2024).

Taking into account the additional advice received from DBCA (2024), DWER is of the view that the proposed clearing will result in cumulative impacts on the TEC, which places greater importance on the need to protect other occurrences of the TEC on Rotttnest Island. Through the detailed assessment outlined in Section 3.2 above, the Delegated Officer has determined that the following significant residual impacts remain after the application of the avoidance and mitigation measures summarised in Section 3.1:

- direct impact on 3.29 hectares of the TEC occurrence within the application area,

Considering DBCA advice (2024) and DWER’s recommendation for the long-term protection of the adjacent TEC and ongoing management actions to improve existing TEC occurrences on Rotttnest Island, the applicant proposed an environmental offset comprising of:

- revegetation of approximately 8.28 hectares of area to the south of Lake Serpentine to provide a buffer to an existing occurrence of SCP30a TEC;
- revegetation of 3.19 hectares of an existing 'Good' condition occurrence of the TEC
- revegetation of 1.8 hectares of 'Good-Degraded' condition occurrence of the TEC
- revegetation of 0.47 ha of 'Degraded' condition occurrence of the TEC

RIA has developed a protocol for weed management at the offset sites associated with this Clearing Permit and also the area of remnant vegetation located between the CPS 9883/1 and CPS 10450/1 clearing areas (see figure 3). This protocol is included in the Revegetation Management Plan submitted to DWER for CPS 10450/1.

The applicant has committed to include an express provision for in perpetuity protection of offset sites in the revised Rottneest Island Management Plan (RIMP). DWER notes that the RIMP is a statutory document under the RIA Act), with the current RIMP being in place for 2023-2028.



Figure 3: Location of offset sites for CPS 10450/1 (outlined red and blue in top image), as well as remaining occurrence of SCP30a TEC between the CPS 9883/1 and CPS 10450/1 clearing areas (outlined red in bottom image). A weed management plan will be implemented across all of the above sites.

Noting that the offset proposal aligns with DBCA's recommendation for long-term protection of existing TEC occurrences on Rottnest Island, the Delegated Officer is satisfied that the combined offset strategy will enhance ecological linkage function by providing connectivity to the existing mapped area of TEC SCP30a and improve the vegetation condition of the existing occurrences of TEC, thus adequately counterbalancing the significant residual impacts of the clearing on the SCP30a TEC. The justification for the values used in the offset calculation is provided in Appendix F.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
Avoidance and minimisation measures	see Section 3.1
Response to request for further information	see Section 3
Offsets outlining the revegetation plans	see Section 4

Appendix B. Details of public submission

Summary of comments	Consideration of comment
Impacts to fauna habitat	The impacts of clearing on fauna habitat is addressed in section 3
Impacts to the threatened ecological community (TEC) and loss of connectivity between the TEC	The impacts of clearing on the TEC is addressed in Section 3 and Section 4
TEC is significant as a remnant of native vegetation in an area that has been extensively cleared	Prevalence of SCP30a TEC on Rottnest Island is addressed in Section 3 and Section 4
Impacts of further increasing tourism.	Impacts of human activity and tourism addressed in Section 3
Degradation of the wetlands	There are no wetlands within the application area
Impacts of land degradation	The RIA will develop a CEMP and OEMP which will detail measures to manage land degradation impacts as outlined in section 3.1
Endemic value of the environment on Rottnest Island cannot be offset like for like.	Offsets are addressed in Section 4 and Appendix F.

Appendix C. Site characteristics

C.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is a 3.29-hectare patch of native vegetation in the intensive land use zone of Western Australia. It is at the southern end of a patch of native vegetation along Parker Point Road, terminating at Bickley Swamp and bounded by the railway line on the eastern side.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 76 per cent of the original native vegetation cover, although it is noted that a large proportion of this is modified to various extents from its original state.</p>
Ecological linkage	No formal ecological linkages have been identified within the application area. Vegetation within the application area forms part of a local ecological linkage between vegetation to the north and the TEC occurrence to the south.
Conservation areas	The application area is on Rottnest Island, a Class A reserve for the purpose of 'public recreation' as registered in 2003 under the <i>Land Administration Act 1997</i> . It is managed by the RIA under the provisions of the <i>Rottnest Island Authority Act 1987</i> .
Vegetation description	A vegetation survey (RPS Consulting, 2023) indicates the vegetation within the proposed clearing area consists of:

Characteristic	Details
	<ul style="list-style-type: none"> • MIAp: <i>Melaleuca/Acanthocarpus</i> woodland: <i>Melaleuca lanceolata</i> (<i>Callitris preissii</i>) low openwoodland/shrubland over <i>Acanthocarpus preissii</i> low shrubland <p>The full survey descriptions and maps are available in Appendix G.</p> <p>This is consistent with the mapped vegetation type:</p> <ul style="list-style-type: none"> • Quindalup Complex (55), which is described as Coastal dune complex consisting mainly of two alliances - the strand and fore-dune alliance and the mobile and stable dune alliance. Local variations include the low closed forest of <i>Melaleuca lanceolata</i> (Rottnest Teatree) - <i>Callitris preissii</i> (Rottnest Island Pine), the closed scrub of <i>Acacia rostellifera</i> (Summer-scented Wattle) and the low closed <i>Agonis flexuosa</i> (Peppermint) forest of Geographe Bay. (Heddl et al., 1980) <p>The mapped vegetation type retains approximately 60 per cent of the original extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Information provided by the applicant (RIA, 2024a) and the vegetation surveys submitted to DWER (RPS, 2023; 360 Environmental, 2022; Focused Vision, 2022) indicate the vegetation within the proposed clearing area is in 'Very Good' to 'Degraded' (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> • 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. • Degraded: Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. <p>The full Keighery (1994) condition rating scale is provided in Appendix E. The full survey descriptions and mapping are available in Appendix G.</p>
Climate and landform	<p>Climate: The long-term mean minimum temperature for Rottnest Island from 12.4°C (July and August) to 17.8°C (July) (1983 to 2022) and the long-term mean maximum temperature ranges from 19.5°C (February) to 27.2°C (February) (360 Environmental, 2022).</p> <p>Topography: The topography of the site is relatively flat, and ranges from seven metres Australian Height Datum (AHD) in the southwest part of the site to five metres AHD in the northeast (360 Environmental, 2022).</p>
Soil description	<p>The soil is mapped as the Quindalup South System (211Qu), including:</p> <ul style="list-style-type: none"> • Quindalup parabolic low (211Qu_D5) – described as low, undulating parabolic sand dunes; and • Quindalup parabolic bowls b (211Qu__D6b) - described as associated with D5 parabolic dunes.
Land degradation risk	<p>Soils within the application area have a moderate risk of wind erosion, water erosion, and phosphorus export and a low risk of other land degradation impacts (refer to Table C.6).</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that Bickley Swamp is located less than 30 metres south of the application area and the Government House Lake is approximately 300 metres to the west of the application area.</p>
Hydrogeography	<p>The application area falls within the Rottnest Island Groundwater Area, as proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act).</p> <p>Hydrogeology: Surficial Sediments - Shallow Aquifers (Limestone, calcrete lithology) Groundwater salinity: 500-1000 mg/L TDS</p>

Characteristic	Details
Flora	There are records of four Priority flora species within the local area, with the closest to the application area being Priority 4 species <i>Lepidium puberulum</i> , approximately 0.7 kilometres south-west from the application area. All four priority flora species are found in soil and vegetation types similar to that of the application area. No threatened or priority flora were identified within the site during flora and vegetation surveys and the site visit conducted by RPS (RPS Consulting, 2023)
Ecological communities	The <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994))-SCP30a Threatened Ecological Community (SCP 30a TEC) is mapped 60 metres north of application area. The vegetation within the application area is analogous with SCP30a TEC (RPS Consulting, 2023).
Fauna	There are records of 40 fauna species of conservation significance within the local area, the closest of which to the application area are some Migratory birds.

C.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Swan Coastal Plain	1,501,221.93	579,813.47	38.62	222,916.97	14.85
Vegetation complex					
Beard vegetation association ROCKINGHAM_15 *	1,977.93	1,564.26	79.09	883.36	44.66
Quindalup Complex	54,573.87	33,011.64	60.49	5,994.64	10.98
Local area					
10km radius	1,862.96	1,427.90	85.60 ***	-	-

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

*** Extent remaining excludes waterbodies on Rottnest Island

C.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix I.1), and survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (local area)
<i>Lachnagrostis nesomytica</i> subsp. <i>Nesomytica</i>	1	N	Y	Y	3.16	2

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 (local area)
<i>Lachnagrostis nesomytica</i> subsp. <i>pseudofiliformis</i>	1	N	Y	Y	1.06	3
<i>Lepidium puberulum</i>	4	Y	Y	Y	0.73	1
<i>Myosotis australis</i> subsp. <i>australis</i>	4	Y	Y	Y	2.67	1

C.4. Fauna analysis table

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

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)
<i>Falco peregrinus</i> (Peregrine falcon)	OS	Possible	1.753	4
<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)	P3	Possible	1.194	3
<i>Lerista lineata</i> (Perth slider, lined skink)	P3	Possible	0.47	11
<i>Pseudonaja affinis exilis</i> (Rottnest Island dugite)	P4	Possible	0.086	65
<i>Setonix brachyurus</i> (quokka)	VU	Y	0.425	90
<i>Tiliqua rugosa konowi</i> (Rottnest Island bobtail)	VU	Y	0.223	45

C.5. Ecological community analysis table

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

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)	Are surveys adequate to identify? [Y, N, N/A]
<i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. 1994)	CR	Y	Y	Y	0.6	Y

C.6. Land degradation risk table

Risk categories	Land Unit 1
Wind erosion	M2: 30-50% of map unit has a high to extreme wind erosion risk
Water erosion	M1: 10-30% of map unit has a high to extreme water erosion risk
Salinity	L1: 30-50% of map unit has a moderate to high salinity risk or is presently saline
Subsurface Acidification	L2: 3-10% of map unit has a high subsurface acidification risk or is presently acid
Flood risk	L1: <3% of the map unit has a moderate to high hazard
Water logging	L1: <3% of map unit has a moderate to very high waterlogging risk
Phosphorus export risk	M1: 10-30% of map unit has a high to extreme phosphorus export risk

Appendix D. 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></p> <p>The area proposed to be cleared contains a threatened ecological community and provides habitat for conservation significant fauna.</p>	At variance	Yes <i>Refer to Section 3.2.1 and 3.2.2, above.</i>
<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></p> <p>The area proposed to be cleared provides habitat for the quokka, as well as potential habitat for various other conservation significant fauna species. However, in the context of the local area, impacts to habitat values for these species are unlikely to be significant.</p>	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></p> <p>No threatened flora are likely to be present within the area proposed to be cleared. The flora and vegetation survey (360 Environmental, 2022) and the site inspection (RPS Consulting, 2023) did not identify any threatened flora species.</p>	Not likely to be 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></p> <p>The area proposed to be cleared contains species indicative of a threatened ecological community.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
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></p> <p>The extent of the mapped vegetation type and native vegetation in the local area are both consistent with the national objectives and targets for biodiversity conservation in Australia.</p> <p>The vegetation proposed to be cleared provides an informal ecological linkage in the local area.</p>	Not likely to be 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></p> <p>The proposed clearing is within the Rottnest Island Class A reserve. Considering the vegetation within the application area, the clearing will</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>impact the TEC and suitable fauna habitat. Although the application area is located within the 'mixed use' zone within the Settlement area which is not actively managed for conservation, the clearing will impact on the environmental values of Rottnest Island.</p>		
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> <p><u>Assessment:</u></p> <p>Vegetation within the application area is not growing in association with a wetland or watercourse.</p>	Not at variance	No
<p><u>Principle (g):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."</i></p> <p><u>Assessment:</u></p> <p>Soils within the application area have a moderate risk of wind erosion, water erosion, and phosphorus export.</p> <p>The applicant has committed to manage any land degradation measures through the implementation of a CEMP and OEMP and by commencing the construction activities within three months of the completion of the clearing.</p> <p>The permit will condition measures to manage the risk of erosion.</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."</i></p> <p><u>Assessment:</u></p> <p>Given no watercourses or wetlands are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."</i></p> <p><u>Assessment:</u></p> <p>The 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 or waterlogging.</p>	Not likely to be at variance	No

Appendix E. 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 F. Offset calculator value justification

RIA have targeted portions of the SCP 30a TEC occurrences on Rottneest Island in Degraded (D), Good (G), and Degraded to Good (DG) condition for rehabilitation (see Appendix E). DBCA's Species and Communities branch confirmed that these occurrences are a representation of SCP30a TEC.

Noting the rehabilitation of these TECs will not address 100% of the significant residual impact, RIA will achieve the balance through revegetation as a buffer to the existing TEC south of Lake Serpentine (see Appendix H).

Below is the justification for the offset calculator values for rehabilitation/revegetation of:

- Northern TEC occurrence: Comprising an area of 1.71 ha of 'Good' condition vegetation.
- Central TEC occurrence: Comprising an area of 1.48 ha of 'Good' condition vegetation, 1.8 ha of 'Good-Degraded' condition vegetation and 0.47 ha of 'Degraded' condition vegetation.
- Buffer zone: Comprising an area of 8.28 ha located to the south of an existing TEC located adjacent to Lake Serpentine. The area will provide connectivity to the existing mapped area of TEC SCP30a and also the offset site for CPS 9883/1 to the west.



Figure 4: Proposed offset sites including Northern and Central TEC occurrences and the buffer zone site. The existing Lake Serpentine TEC is shown (red) and CPS 9883/1 offset site (yellow).

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Vegetation within the application area analogous to SCP30a (Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain) TEC	The proposed clearing will impact 3.29 hectares of native vegetation that is analogous to SCP30a TEC
Type of environmental value	Ecological community	Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994) (SCP30a)
Conservation significance of environmental value	Threatened ecological community - critically endangered	Endorsed as critically endangered by the WA Minister for Environment
Landscape-level value impacted	yes/no	
Significant impact		
Description	clearing of vegetation that is analogous to SCP30a TEC	Native vegetation analogous to a SCP30a TEC is proposed to be cleared for the purpose of building accommodation for staff. Surveys undertaken by Focus Vision (2022) and 360 Environmental (2022) identified vegetation types MICpAp and MIAp were represented by Callitris preissii (MICpAp only) and Melaleuca lanceolata, which are the key taxa describing the SCP30a TEC, as well as the common community species Acanthocarpus preissii, and *Trachyandra divaricata. For this reason, these vegetation types were considered analogous to the SCP30a TEC.
Significant impact (hectares) / Type of feature	3.29	3.29 ha of native vegetation representative of SCP30a TEC
Quality (scale) / Number	5.00	The condition of the SCP30a vegetation was found to range from 'Very Good' to 'Degraded'. A 'Good' condition rating has been applied for the offset calculation.
Rehabilitation credit		
Description	0	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation of disturbed areas within Rottnest Island	This calculation is carried out for the degraded portion of the offset site particularly the central offset site as the northern offset site does not have any portion mapped as degraded.
Proposed offset (area in hectares)	1.80	The area of revegetation required to mitigate the significant residual impacts by 18.7%, based on the area as per the vegetation condition mapping
Current quality of offset site / Start number (of type of feature)	2.00	considering the offset site is Degraded. The score is aligned with the offset metric guideline
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	2.00	considering the offset site is Degraded. The score is aligned with the offset metric guideline
Future quality WITH offset (scale) / Future number WITH offset	6.00	It is assumed that with appropriate rehabilitation measures, the condition and quality of native vegetation that is analogous to SCP30a within the offset site will be improved, with the potential to increase from a Degraded (Keighery, 1994) to Good - Very Good condition.
Time until ecological benefit (years)	10.00	It is assumed that the benefits of rehabilitation of native vegetation (primarily the establishment of the key species Callitris preissii and Melaleuca lanceolata) will be available after 10 years.
Confidence in offset result (%)	0.8	There is a high to moderate level of confidence that the offset will achieve the predicted result, given rehabilitation will be undertaken in accordance with a revegetation plan and that the RIA have had previous success restoring this TEC.
Duration of offset implementation (maximum 20 years)	20.00	The revegetation offset site is currently a Class A reserve for public recreation. RIA are also willing to place a conservation covenant over the area. Therefore, the maximum of 20 years have been applied.
Time until offset site secured (years)	5.00	given the current RIMP runs until 2028, with an additional year allowed to finalise the next revision.
Risk of future loss WITHOUT offset (%)	10.0%	The reserve is open for development for support facilities and providing recreational facilities. Such as, walk trails, fire breaks, installing utilities such as solar farm etc. Therefore the risk of loss in the class A reserve is 10 percent
Risk of future loss WITH offset (%)	5.0%	The reduced risk of loss is due to the RIMP being amended to include an express provision for in perpetuity protection of offset sites.
Offset ratio (Conservation area only)	N/A	

Figure 5: Offset calculator value justifications for rehabilitation of 'Degraded' condition TEC

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Vegetation within the application area analogous to SCP30a (Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain) TEC	The proposed clearing will impact 3.29 hectares of native vegetation that is analogous to SCP30a TEC
Type of environmental value	Ecological community	Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994) (SCP30a)
Conservation significance of environmental value	Threatened ecological community - critically endangered	Endorsed as critically endangered by the WA Minister for Environment
Landscape-level value impacted	yes/no	
Significant impact		
Description	clearing of vegetation that is analogous to SCP30a TEC	Native vegetation analogous to a SCP30a TEC is proposed to be cleared for the purpose of building accommodation for staff. Surveys undertaken by Focus Vision (2022) and 360 Environmental (2022) identified vegetation types MICpAp and MIAp were represented by Callitris preissii (MICpAp only) and Melaleuca lanceolata, which are the key taxa describing the SCP30a TEC, as well as the common community species Acanthocarpus preissii, and *Trachyandra divaricata. For this reason, these vegetation types were considered analogous to the SCP30a TEC.
Significant Impact (hectares) / Type of feature	3.29	3.29 ha of native vegetation representative of SCP30a TEC
Quality (scale) / Number	5.00	The condition of the SCP30a vegetation was found to range from 'Very Good' to 'Degraded'. A 'Good' condition rating has been applied for the offset calculation.
Rehabilitation credit		
Description	0	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation of disturbed areas within Rottnest Island	This calculation is carried out for the degraded portion of the offset site particularly the central offset site as the northern offset site does not have any portion mapped as degraded.
Proposed offset (area in hectares)	3.19	The area of revegetation required to mitigate the significant residual impacts by 11.4 % (based on the area (ha) as per the vegetation condition mapping)
Current quality of offset site / Start number (of type of feature)	5.00	considering the offsetsite is Good, the score has been aligned with the offset metric guideline
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	5.00	considering the offsetsite is Good, the score has been aligned with the offset metric guideline
Future quality WITH offset (scale) / Future number WITH offset	6.00	It is assumed that with appropriate rehabilitation measures, the condition and quality of native vegetation that is analogous to SCP30a within the offset site will be improved, with the potential to increase from a Degraded (Keighery, 1994) to Good - Very Good condition.
Time until ecological benefit (years)	10.00	It is assumed that the benefits of rehabilitation of native vegetation (primarily the establishment of the key species Callitris preissii and Melaleuca lanceolata) will be available after 10 years .
Confidence in offset result (%)	0.8	There is a high to moderate level of confidence that the offset will achieve the predicted result, given rehabilitation will be undertaken in accordance with a revegetation plan and that the RIA have had previous success restoring this TEC.
Duration of offset implementation (maximum 20 years)	20.00	The revegetation offset site is currently a Class A reserve for public recreation. RIA are also willing to place a conservation covenant over the area. Therefore, the maximum of 20 years have been applied.
Time until offset site secured (years)	5.00	given the current RIMP runs until 2028, with an additional year allowed to finalise the next revision.
Risk of future loss WITHOUT offset (%)	10.0%	The offset site is currently within a Class A reserve for public recreation (Rottnest Island). However, the reserve is open for development for support facilities and providing recreational facilities. Such as, walk trails, fire breaks, installing utilities such as solar farm etc.
Risk of future loss WITH offset (%)	5.0%	the reduced risk of loss is due to the RIMP being amended to include an express provision for in perpetuity protection of offset sites.
Offset ratio (Conservation area only)	N/A	

Figure 6: Offset calculator value justifications for rehabilitation of 'Good' condition TEC

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Vegetation within the application area analogous to SCP30a (Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain) TEC	The proposed clearing will impact 3.29 hectares of native vegetation that is analogous to SCP30a TEC
Type of environmental value	Ecological community	Callitris preissii (or Melaleuca lanceolata) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994) (SCP30a)
Conservation significance of environmental value	Threatened ecological community - critically endangered	Endorsed as critically endangered by the WA Minister for Environment
Landscape-level value impacted	yes/no	
Significant impact		
Description	clearing of vegetation that is analogous to SCP30a TEC	Native vegetation analogous to a SCP30a TEC is proposed to be cleared for the purpose of building accommodation for staff. Surveys undertaken by Focus Vision (2022) and 360 Environmental (2022) identified vegetation types MiCpAp and MIAp were represented by Callitris preissii (MiCpAp only) and Melaleuca lanceolata, which are the key taxa describing the SCP30a TEC, as well as the common community species Acanthocarpus preissii, and *Trachyandra divaricata. For this reason, these vegetation types were considered analogous to the SCP30a TEC.
Significant impact (hectares) / Type of feature	3.29	3.29 ha of native vegetation representative of SCP30a TEC
Quality (scale) / Number	5.00	The condition of the SCP30a vegetation was found to range from 'Very Good' to 'Degraded'. A 'Good' condition rating has been applied for the offset calculation.
Rehabilitation credit		
Description	0	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation of disturbed areas within Rottnest Island	This calculation is carried out for the degraded portion of the offset site particularly the central offset site as the northern offset site does not have any portion mapped as degraded.
Proposed offset (area in hectares)	0.47	The area of revegetation required to mitigate the significant residual impacts by 2.7% (based on the area as per the vegetation condition mapping)
Current quality of offset site / Start number (of type of feature)	4.00	considering the offsetsite is Good-Degraded (assuming predominantly Good), the score has been aligned with the offset metric guideline
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	4.00	considering the offsetsite is Good-Degraded (assuming predominantly Good), the score has been aligned with the offset metric guideline
Future quality WITH offset (scale) / Future number WITH offset	6.00	It is assumed that with appropriate rehabilitation measures, the condition and quality of native vegetation that is analogous to SCP30a within the offset site will be improved, with the potential to increase from a Degraded (Keighery, 1994) to Good - Very Good condition.
Time until ecological benefit (years)	10.00	It is assumed that the benefits of rehabilitation of native vegetation (primarily the establishment of the key species Callitris preissii and Melaleuca lanceolata) will be available after 10 years .
Confidence in offset result (%)	0.8	There is a high to moderate level of confidence that the offset will achieve the predicted result, given rehabilitation will be undertaken in accordance with a revegetation plan and that the RIA have had previous success restoring this TEC.
Duration of offset implementation (maximum 20 years)	20.00	The revegetation offset site is currently a Class A reserve for public recreation. RIA are also willing to place a conservation covenant over the area. Therefore, the maximum of 20 years have been applied.
Time until offset site secured (years)	5.00	given the current RIMP runs until 2028, with an additional year allowed to finalise the next revision.
Risk of future loss WITHOUT offset (%)	10.0%	The offset site is currently within a Class A reserve for public recreation (Rottnest Island). However, the reserve is open for development for support facilities and providing recreational facilities. Such as, walk trails, fire breaks, installing utilities such as solar farm etc.
Risk of future loss WITH offset (%)	5.0%	The reduced risk of loss is due to the RIMP being amended to include an express provision for in perpetuity protection of offset sites.
Offset ratio (Conservation area only)	N/A	

Figure 7: Offset calculator value justifications for rehabilitation of 'Degraded to Good' condition TEC

Environmental value to be offset		
Calculation	Score (Area)	Rationale
Conservation significance		
Description	Vegetation within the application area analogous to SCP30a (<i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands, Swan Coastal Plain) TEC	The proposed clearing will impact 3.29 hectares of native vegetation that is analogous to SCP30a TEC
Type of environmental value	Ecological community	<i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands, Swan Coastal Plain (floristic community type 30a as originally described in Gibson et al. (1994) (SCP30a)
Conservation significance of environmental value	Threatened ecological community - critically endangered	Endorsed as critically endangered by the WA Minister for Environment
Landscape-level value impacted	yes/no	
Significant impact		
Description	clearing of vegetation that is analogous to SCP30a TEC	Native vegetation analogous to a SCP30a TEC is proposed to be cleared for the purpose of building accommodation for staff. Surveys undertaken by RPS (2023) and Focus Vision (2022) identified vegetation type M4p being analogous to the state listed Threatened Ecological Community (TEC) <i>Callitris preissii</i> (or <i>Melaleuca lanceolata</i>) forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described by Gibson et. al. 1994). Vegetation type M4p comprises <i>Melaleuca lanceolata</i> Tall Shrubland over <i>Acanthocarpus preissii</i> Low Open Shrubland.
Significant impact (hectares) / Type of feature	3.29	3.29 hectares of the application area representative of SCP30a TEC
Quality (scale) / Number	5.00	The condition of the vegetation was found to range from 'Good' to 'Completely Degraded' (RPS qualitative survey, 2023) and 'Good' to 'Degraded' (RIA site inspection, 2023). A 'Good' condition rating has been applied for the offset calculation.
Rehabilitation credit		
Description	0	
Proposed rehabilitation (area in hectares)	0.00	
Current quality of rehabilitation site / Start number (of type of feature)	0.00	
Future quality WITHOUT rehabilitation (scale) / Future number WITHOUT rehabilitation	0.00	
Future quality WITH rehabilitation (scale) / Future number WITH rehabilitation	0.00	
Time until ecological benefit (years)	0.00	
Confidence in rehabilitation result (%)	0	
Offset		
Description	Revegetation of disturbed areas within Rottnest Island	Revegetation proposed to provide a buffer to an existing TEC.
Proposed offset (area in hectares)	8.28	The area of revegetation required to mitigate the significant residual impacts, based on the assumptions made below. Revegetation will meet 67.2% of the offset requirement.
Current quality of offset site / Start number (of type of feature)	3.00	The vegetation present within the offset site comprises native species <i>Melaleuca lanceolata</i> , <i>Callitris preissii</i> , <i>Rhagodia baccata</i> , <i>Acanthocarpus preissii</i> , <i>Conostylis candidans</i> , <i>Lepidosperma gladiatum</i> and <i>Pittonoporum</i> condition. The site is not mapped as an occurrence of SCP30a TEC and aerial imagery indicates the site to comprise more vegetation and proportionately less areas in completely degraded (Keighery, 1994) condition relative to the adjacent offset site for CPS 9883/1
Future quality WITHOUT offset (scale) / Future number WITHOUT offset	3.00	It is not expected that the quality of native vegetation within the offset site will significantly change over time, in the absence of the offset.
Future quality WITH offset (scale) / Future number WITH offset	6.00	It is assumed that with appropriate revegetation measures, the condition and quality of native vegetation within the offset site will be improved, with the potential to increase from a completely Degraded (Keighery, 1994) to Good - Very Good condition. Revegetation of the proposed offset site will provide a buffer to the TEC.
Time until ecological benefit (years)	10.00	It is assumed that the benefits of revegetation of native vegetation to provide a buffer to the adjacent TEC will be available after 10 years.
Confidence in offset result (%)	0.8	There is a high to moderate level of confidence that the offset will achieve the predicted result, given rehabilitation will be undertaken in accordance with a revegetation plan (and that the RIA have had previous success restoring this TEC).
Duration of offset implementation (maximum 20 years)	20.00	The maximum of 20 years has been applied.
Time until offset site secured (years)	5.00	given the current RMP runs until 2028, with an additional year allowed to finalise the next revision
Risk of future loss WITHOUT offset (%)	10.0%	The offset site is currently within a Class A reserve for public recreation (Rottnest Island). However, the reserve is open for development for support facilities and providing recreational facilities. Such as, walk trails, fire breaks, installing utilities such as solar farm etc.
Risk of future loss WITH offset (%)	5.0%	the reduced risk of loss is due to the RMP being amended to include an express provision for in perpetuity protection of offset sites.
Offset ratio (Conservation area only)	N/A	

Figure 8: Revegetation proposed to provide a buffer to an existing TEC.

Appendix G. Biological survey information

RPS undertook qualitative assessment of the vegetation and its condition within the proposed clearing area on Parker Point Road, in 2023. The vegetation in the application area is analogous to the state listed TEC “*Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands of the Swan Coastal Plain (floristic community type 30a as originally described by Gibson *et. al.* 1994)”. This TEC is listed as Critically Endangered.



Figure 9: Vegetation in the proposed clearing area



Figure 10: The vegetation type (*Melaleuca/Acanthocarpus* woodland) across the proposed clearing area.



Figure 11: The introduced eucalypt *Eucalyptus utilis* (Coastal Moort) was noted as present and appears well established



Figure 12: Degraded stand of *Melaleuca lanceolata*



Figure 13: Degraded vegetation on dune

Appendix H. Additional survey to confirm the presence of SCP30a TEC in the identified offset sites- Emerge, 2024

Emerge Associates (Emerge) were engaged by the Rottnest Island Authority to undertake a vegetation survey within three areas on Rottnest Island (Figure 14). The survey areas collectively comprise 26.14 hectares.

The purpose of the survey was to determine whether the '*Callitris preissii* (or *Melaleuca lanceolata*) forests and woodlands, Swan Coastal Plain' threatened ecological community (TEC) (SCP30a) occurs within the survey areas.

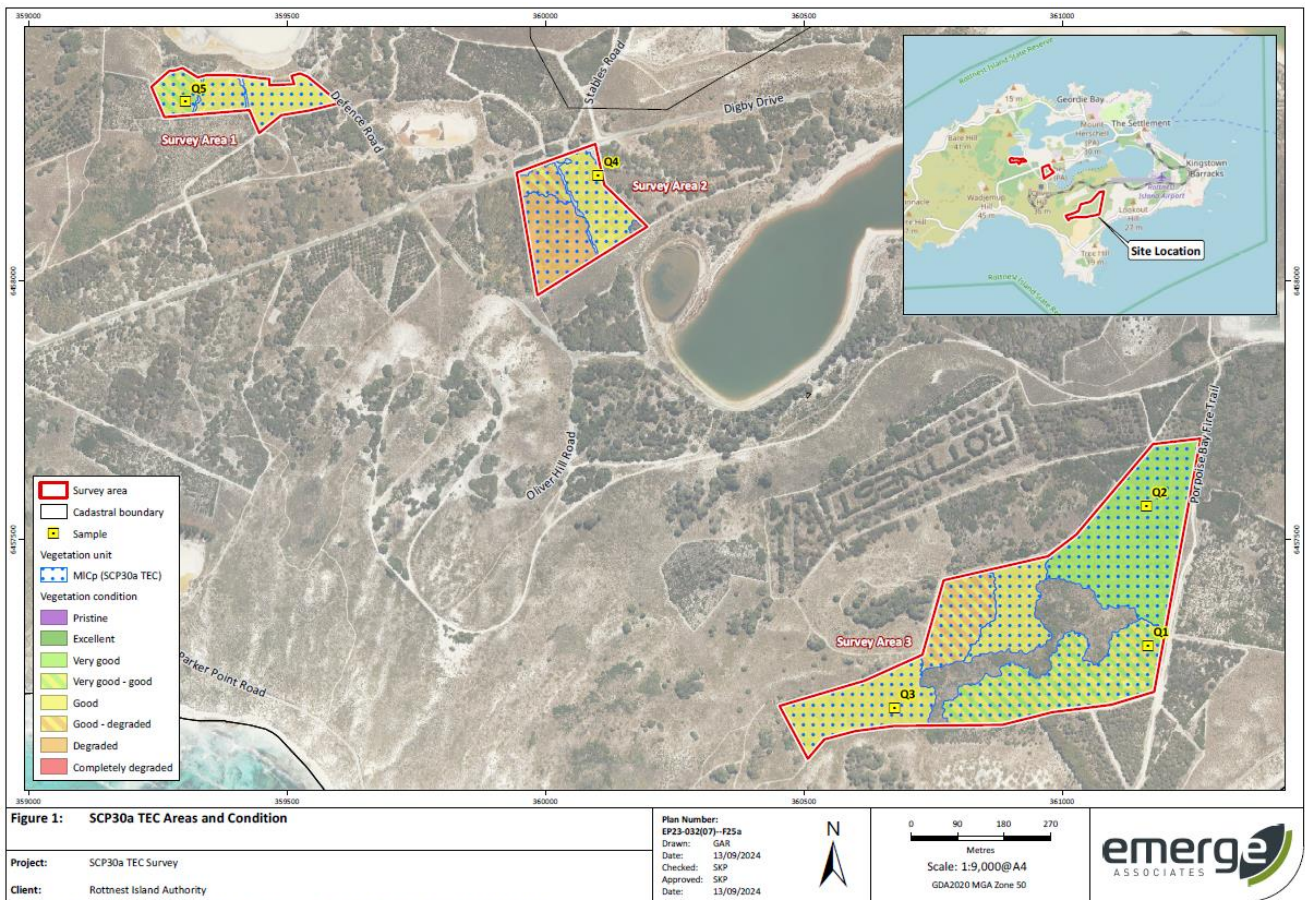


Figure 14: The map indicates the three areas on Rottnest Island where the vegetation survey was conducted by Emerge (2024) to identify the presence of SCP30a TEC (Emerge, 2024).

	Size (ha)			
	Survey area 1	Survey area 2	Survey area 3	TOTAL
SCP30a TEC	2.35	3.76	16.69	22.80
Not SCP30a TEC	0.07	0.26	3.01	3.34
TOTAL	2.42	4.02	19.69	26.14

Areas of SCP30a TEC within three survey areas

Appendix I. Sources of information

I.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)

I.2. References

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