



## CLEARING PERMIT

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

<b>Purpose Permit number:</b>	CPS 9265/1
<b>Permit Holder:</b>	Satterley Property Group Pty Ltd
<b>Duration of Permit:</b>	From 3 September 2021 to 3 September 2031

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 remediation actions described under an approved Remediation Action Plan.

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

Lot 9109 on Deposited Plan 419061, Dalyellup

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

The permit holder must not clear more than 0.5 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 3 September 2026.

### **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 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*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known 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 from west to east to allow fauna to move into adjacent *native vegetation* ahead of the *clearing* activity.

## 8. Fauna management – western ringtail possums

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 western ringtail possum(s) (*Pseudocheirus occidentalis*).

- (a) *Clearing* activities must cease in any area where fauna referred to in *condition 8(a)* are identified until either:
  - (i) the western ringtail possum(s) individual has moved on from that area to adjoining *suitable habitat*; or
  - (ii) the western ringtail possum(s) individual has been removed by a *western ringtail possum specialist*.
- (b) Any western ringtail possum(s) individual removed in accordance with *condition 8(b)(ii)* must be relocated by a *western ringtail possum specialist* to a *suitable habitat* or as otherwise approved by the *CEO*.
- (c) Where fauna is identified under *condition 8(a)*, the permit holder must within 14 calendar days provide the following records to the *CEO*:
  - (i) the number of individuals identified;
  - (ii) the date each individual was identified;
  - (iii) the location where each individual was identified recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings or decimal degrees;
  - (iv) the number of individuals removed and relocated;
  - (v) the relevant qualifications of the *western ringtail possum specialist* undertaking removal and relocation;
  - (vi) the date each individual was removed;
  - (vii) the method of removal;
  - (viii) the date each individual was relocated;
  - (ix) the location where each individual was relocated to, recorded using a GPS unit set to GDA94, expressing the geographical coordinates in Eastings and Northings or decimal degrees; and

- (x) details pertaining to the circumstances of any death of, or injury sustained by, an individual.

**9. Revegetation and rehabilitation – retention of vegetative material and topsoil**

The permit holder must:

- (a) retain *uncontaminated* vegetative material removed by *clearing* authorised under this permit and stockpile *uncontaminated* vegetative material in an area that has already been cleared;
- (b) retain 100 millimetres of *uncontaminated* topsoil from the cleared area, where possible, and stockpile the topsoil in an area that has already been cleared;
- (c) immediately following *clearing* authorised under this permit, *revegetate* and *rehabilitate* the area(s) that are no longer required for remediation actions by:
  - (i) re-shaping the surface of the land so that it is consistent with the surrounding five metres of uncleared land;
  - (ii) ripping the ground on the contour to remove soil compaction;
  - (iii) laying the *uncontaminated* topsoil, or other clean *fill*, retained under *condition 9(b)* on the cleared area(s); and
  - (iv) laying the *uncontaminated* vegetative material, retained under *condition 9(a)* on the cleared area(s); and
  - (v) undertake *weed* control activities as required, to reduce *weed* cover within the *revegetation* areas to no greater than the *weed* cover within the surrounding five metres of uncleared land.

**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 <i>clearing</i> activities generally	<ul style="list-style-type: none"> <li>(a) the species composition, structure, and density of the cleared area;</li> <li>(b) the location where the <i>clearing</i> occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings;</li> <li>(c) the date that the area was cleared;</li> <li>(d) the size of the area cleared (in hectares);</li> <li>(e) actions taken to avoid, minimise, and reduce the impacts and extent of <i>clearing</i> in accordance with <i>condition 5</i>; and</li> <li>(f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> in accordance with <i>condition 6</i>.</li> </ul>

No.	Relevant matter	Specifications
2.	In relation to fauna management pursuant to <i>condition 8</i>	(a) Actions taken to manage western ringtail possum(s) in accordance with <i>condition 8</i> .
3.	In relation to revegetation pursuant to <i>condition 9</i>	(b) actions taken to <i>revegetate</i> and <i>rehabilitate</i> in accordance with <i>condition 9</i> .

## 11. Reporting

The permit holder must provide to the *CEO* the records required under *condition 10* 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 <i>department</i> responsible for the administration of the <i>clearing</i> provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the <i>EP Act</i> .
condition	a <i>condition</i> to which this <i>clearing</i> permit is subject under section 51H of the <i>EP Act</i> .
contaminated	has the meaning given to it under the <i>Contaminated Sites Act 2003</i> section 4(1) being; in relation to land, water or a site, means having a substance present in or on that land, water or site at above background concentrations that presents, or has the potential to present, a risk of harm to human health, the environment or any environmental value.
department	means the <i>department</i> established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the <i>EP Act</i> , which includes Part V Division 3.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
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 <i>CEO</i> as a suitable <i>fauna specialist</i> 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.
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 <i>EP Act</i> .
rehabilitate/	means actively managing an area containing <i>native vegetation</i> in

Term	Definition
rehabilitated/ rehabilitation	order to improve the ecological function of that area.
revegetate / vegetated / revegetation	means the re-establishment of a cover of local provenance <i>native vegetation</i> 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 <i>pre-clearing</i> vegetation types in that area.
suitable habitat (western ringtail possum)	means habitat known to support western ringtail possums ( <i>Pseudocheirus occidentalis</i> ) within the known current distribution of the species, typically characterised by abundant foliage, presence of suitable nesting structures such as tree hollows, as well as high canopy cover and continuity. Known habitat includes peppermint ( <i>Agonis flexuosa</i> ) dominated woodlands, jarrah ( <i>Eucalyptus marginata</i> ) and marri ( <i>Corymbia calophylla</i> ) forests, riparian vegetation with a canopy of Bullich ( <i>Eucalyptus megacarpa</i> ) or flooded gum ( <i>Eucalyptus rudis</i> ), karri ( <i>Eucalyptus diversicolor</i> ) forests, sheoak ( <i>Allocasuarina fraseriana</i> ) dominated woodlands, and other stands of myrtaceous trees growing near swamps, watercourses or floodplains.
uncontaminated	in relation to land, water or a site, means not being classed as <i>contaminated</i> in accordance with the <i>Contaminated Sites Act 2003</i> , section 4(1).
weeds	means any plant – (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.
western ringtail possum specialist	means a <i>fauna specialist</i> who holds a tertiary qualification specialising in environmental science or equivalent, has a minimum of two years of work experience in western ringtail possum ( <i>Pseudocheirus occidentalis</i> ) identification, surveys of western ringtail possums and capture and handling of western ringtail possums, and holds a valid fauna licence issued under the <i>Biodiversity Conservation Act 2016</i> .

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## END OF CONDITIONS


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Ryan Mincham  
 MANAGER  
 NATIVE VEGETATION REGULATION

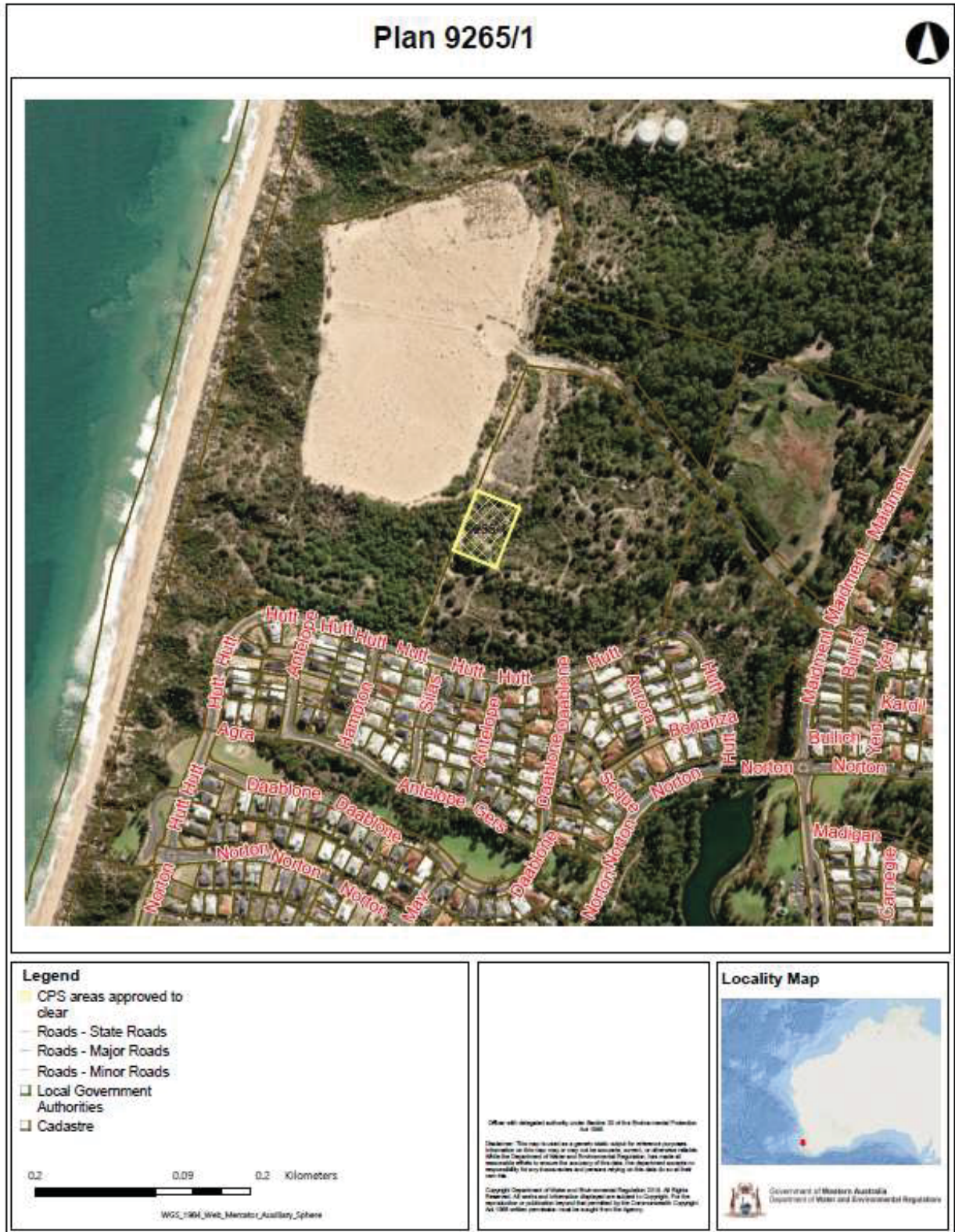
*Officer delegated under Section 20  
 of the Environmental Protection Act 1986*

11 August 2021



# Schedule 1 Plan 9265/1

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



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



# Clearing Permit Decision Report

## 1 Application details and outcome

### 1.1. Permit application details

<b>Permit number:</b>	CPS 9265/1
<b>Permit type:</b>	Purpose permit
<b>Applicant name:</b>	Satterley Property Group Pty Ltd
<b>Application received:</b>	13 April 2021
<b>Application area:</b>	0.5 hectares of native vegetation
<b>Purpose of clearing:</b>	Clearing for the purpose of remediation actions undertaken in accordance with an approved Remediation Action Plan
<b>Method of clearing:</b>	Mechanical removal
<b>Property:</b>	Lot 9109 on Plan 419061
<b>Location (LGA area/s):</b>	Shire of Capel
<b>Localities (suburb/s):</b>	Dalyellup

### 1.2. Description of clearing activities

The vegetation proposed to be cleared is contained within a single contiguous area (see Figure 1, Section 1.5). The application is to clear native vegetation within the proposed area to facilitate remediation actions undertaken in accordance with an approved Remediation Action Plan, including the excavation of in-situ soil material. This clearing is associated with clearing previously permitted under clearing permit CPS 8609/1.

### 1.3. Decision on application

<b>Decision:</b>	Granted
<b>Decision date:</b>	11 August 2021
<b>Decision area:</b>	0.5 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 (Submission, 2021).

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of recent and past flora and fauna surveys, 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 3.3).

The Delegated Officer also took into consideration:

- previous decision to grant clearing of 0.22634 hectares of native vegetation in some of the same areas for the same purpose (CPS 8609/1);
- the classification of the application area as 'possibly contaminated – investigation required';

- the appropriateness of survey effort and timing of flora and fauna surveys (past and present) within the proposed clearing area;
- the purpose for clearing;
- the temporary nature of clearing;
- the condition of the vegetation as successional revegetation still transitioning after revegetation which has not yet reached its full ecological functional potential.

The assessment identified that the proposed clearing will result in:

- the loss of 0.5 hectares of revegetated native vegetation considered low quality suitable habitat for *Pseudocheirus occidentalis* (Western Ringtail Possum);
- the potential introduction and spread of weeds into adjacent vegetation;
- potential impacts to any individual fauna inhabiting the clearing area;
- the loss of 0.5 hectares of vegetation which contributes to an ecological linkage;
- the loss of 0.5 hectares of vegetation growing in association with Big Swamp wetland suite;
- localised impacts on water quality through sediment and phosphorus export.

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 may have long-term adverse impacts on the environmental values above which can be minimised and managed to be unlikely to lead to an unacceptable risk to these 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;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- western ringtail possum management;
- undertake remediation actions through revegetation.



1.5. Site map

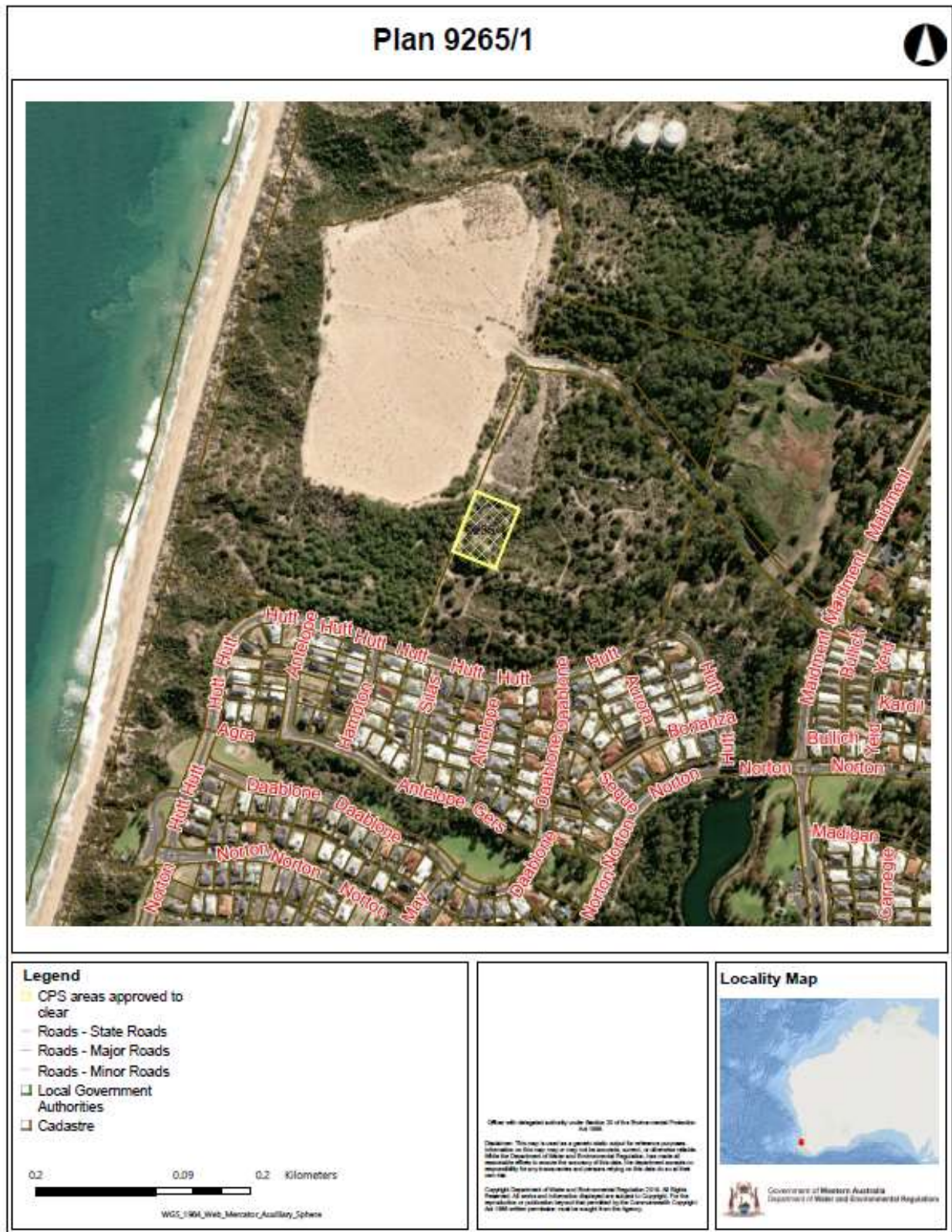


Figure 1: Plan 9265/1 – areas approved to be cleared

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)
- *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)
- *Contaminated Sites Act 2003* (WA)
- *Contaminated Sites Regulations 2006* (WA)
- *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (Cth)

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)
- *Guideline: Assessment and management of contaminated sites* (DWER, December 2014)
- *Guideline: Identification, reporting and classification of contaminated sites in Western Australia* (DWER, June 2017)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

## 3 Detailed assessment of application

### 3.1. Avoidance and mitigation measures

The 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 through the use of exploratory investigation pits to identify areas of potential contamination. The applicant has only applied to clear areas for remediation where testing supports this outcome.

The applicant previously applied and was granted a clearing permit for investigation of contaminated soils within the same property. The area proposed to be cleared has been identified by the applicant as requiring remediation accordance with their Remediation Action Plan (RPS, 2021). The applicant is committed to mitigation measures imposed by the delegated officer in the absence of being able to avoid the clearing of native vegetation within this 0.5 hectare area (Satterley Property Group Pty Ltd, 2021).

### 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 low quality *Pseudocheirus occidentalis* (Western Ringtail Possum) habitat, environmental linkage values, individual fauna occurring within the application area, the spread of weeds into adjacent native vegetation, vegetation growing in a wetland environment and potential water quality impacts.

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. Environmental value: Biological (fauna) - Clearing Principle (b)

#### Assessment

According to available datasets, 53 conservation significant fauna species have been recorded within the local area. Noting the habitat requirements of the recorded species, the mapped vegetation type, and the condition of the vegetation within the application area, the application area may comprise suitable habitat for *Pseudocheirus occidentalis* (Western Ringtail Possum (WRP)), *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Calyptorhynchus sp. 'white-tailed black cockatoo'* (White-tailed black cockatoo), *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo), *Setonix brachyurus* (quokka), *Isoodon fusciventer* (Quenda, southwestern brown bandicoot), *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale, wambenger), *Idiosoma sigillatum* (Swan Coastal Plain shield-backed trapdoor spider) and *Notamacropus Irma* (western brush wallaby).

The vegetation within the application area is revegetation undergoing ecological succession. Assessment of the condition, quality and value of the vegetation as fauna habitat is considered in the context of the temporal situation of the vegetation. The juvenile or immature development of critical habitat species reduces the quality of existing habitat, however, the value of the final habitat assemblage is also considered.

*Pseudocheirus occidentalis* (Western Ringtail Possum (WRP)) is a small to medium sized leaf-eating arboreal marsupial, with adults weighing approximately 700g to 1.3kg, a head/body length of 30-40cm and a tail as long as its body. Its tail is strongly prehensile which is used to support the possum while foraging in the tree canopy. They spend most of their time in trees (arboreal), particularly in the canopy of peppermint (*Agonis flexuosa*) woodland and eucalypt forests. They feed on leaves and like to forage for food at night (nocturnal). They build nests or resting places called 'dreys' from the foliage and also use tree hollows (DPaW, 2014).

WRP's have been recorded 1,996 times in the local area, of which the closest record is 150 metres east application area. A daytime fauna survey of the application area did not identify any individuals, or evidence of individuals within the application area. The survey noted that WRP's have a home range of approximately 5 hectares and that the area proposed to be cleared may be used as a rest stop for individuals in the local area (Ecosystem Solutions, 2021). Based on the evidence available to the Department, it is likely that WRP pass through, and may rest within the application area however the vegetation is unlikely to provide critical habitat for local populations of WRP's.

The application area is within the known distribution of *Calyptorhynchus baudinii* (Baudin's cockatoo), *Calyptorhynchus latirostris* (Carnaby's cockatoo), *Calyptorhynchus sp. 'white-tailed black cockatoo'* (White-tailed black cockatoo) and *Calyptorhynchus banksii naso* (forest red-tailed black cockatoo) (collectively referred to as black cockatoos). The assessment has identified that the application area is not likely to provide suitable breeding habitat. Suitable breeding habitat for black cockatoos includes trees which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most tree species a suitable DBH is 500 millimetres (Commonwealth of Australia, 2012). A fauna survey did not identify any trees with DBH greater than 500 millimetres or trees containing hollows suitable for black cockatoos within the application area (Ecosystem Solutions, 2021).

Noting typical food resources for black cockatoos, the application area does not contain valuable foraging habitat for these species. Forest red-tailed black cockatoo's forage within jarrah and marri woodlands and forest, and edges of karri forests including wandoo and blackbutt, within the range of the subspecies. The species largely feeds on seeds of marri and jarrah, as well as other *Eucalyptus* species and *Allocasuarina* cones (Commonwealth of Australia, 2012). Baudin's cockatoo prefer foraging within Eucalypt woodlands and forest, and proteaceous woodland and heath. During the breeding season (October to late January/early February) this species prefers marri seeds. Outside the breeding season the species may feed in fruit orchards and tips of *Pinus* spp. (Commonwealth of Australia, 2012). Carnaby's cockatoo feeds on the seeds, nuts and flowers of a large variety of plants including Proteaceous species (*Banksia*, *Hakea* and *Grevillea*), as well as *Allocasuarina* and *Eucalyptus* species, *Corymbia calophylla* and a range of introduced species (Valentine and Stock, 2008).

The local area comprises approximately 5,426.58 hectares of native vegetation, the majority of which is mapped as black cockatoo foraging habitat. The application area represents approximately 0.009 per cent of this extent. Clearing of the application area is unlikely to significantly impact available resources for black cockatoos locally or regionally and will not have unacceptable long-term impacts for these species.

Suitable habitat for *Setonix brachyurus* (quokka), *Isoodon fusciventer* (Quenda, southwestern brown bandicoot), *Phascogale tapoatafa wambenger* (South-western brush-tailed phascogale, wambenger), *Idiosoma sigillatum* (Swan Coastal Plain shield-backed trapdoor spider) and *Notamacropus Irma* (western brush wallaby) occurs within

the application area, however, the revegetated vegetation would require intensive management in order to provide primary or critical habitat to these species in the future.

The area proposed to be cleared is mapped as part of a significant regional ecological linkage under the South West Regional Ecological Linkage project (Molloy et al., 2009). The vegetation within the application area is contiguous with a mapped axis line and is therefore designated the highest conservation value of 1A. Fragmentation of environmental linkages leads to a cumulative impact on the ecological function of the linkage. The application area has been previously disturbed (RPS, 2021) and revegetated. There is no evidence to suggest the previous clearing and revegetation of the application area has significantly impacted the ecological linkage. Giving consideration to the precautionary principle and potential value of the vegetation once revegetation matures, it is reasonable to conclude that removal of the vegetation will contribute to fragmentation of the ecological linkage. Mitigation of the impacts of fragmentation of the ecological linkage can be achieved through revegetation of the application area.

#### Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.5 hectares of low-quality habitat for western ringtail possums and fragment an existing ecological linkage.

For the reasons set out above, it is considered that the impacts of the proposed clearing on western ringtail possums and the mapped ecological linkage can be managed by taking steps to minimise the risk of the introduction and spread of weeds, allow fauna to move into adjoining vegetation, manage western ringtail possums and rehabilitate the site to ensure habitat and fragmentation of the ecological linkage are mitigated.

#### Conditions

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

- Fauna Management: Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals
- Hygiene management: cleaning of equipment and fill material to minimise spread of weeds to adjacent native vegetation
- Western ringtail possum management: to manage impacts to western ringtail possums within the application area
- Revegetation: revegetation of the application area to mitigate the loss of habitat for western ringtail possums within an environmental linkage

### **3.2.2. Environmental value: water resource - Clearing Principles (f), (g) and (i)**

#### Assessment

According to available datasets, the application area is part of the Big Swamp consanguineous wetland suite, has a high level of water repellence risk and moderate wind erosion, water erosion and phosphorus export risk.

The Big Swamp consanguineous wetland suite is associated with basins with ancestral fluvial and possibly estuarine phases, and flats resulting from fluvial and estuarine processes. The application area is located approximately 450 metres from the Western Australian coastline. Consanguineous are wetlands aggregated into natural groups and approximately 30 different formally named wetland suites related to geomorphic setting have been described on the Swan Coastal Plain (Semeniuk and Semeniuk, 2019). The Big Swamp consanguineous wetland suite covers approximately 674.6 hectares of which 52.3 hectares (7.8 per cent) are classified as conservation category wetland. The remaining areas of the Big Swamp consanguineous wetland suite are considered to have been modified and are classed as either resource enhancement or multiple use wetlands (DPaW, 2017). The application area is classified as a resource enhancement wetland. Areas of dampland and palusplain in conservation category wetland areas of the Big Swamp consanguineous wetland suite are the most significant for conservation on the Swan Coastal Plain. Based on the evidence above, the vegetation within the application area is not significant to the continuation of ecological function of this wetland suite, however, further fragmentation of wetlands suites on the Swan Coastal Plain is not sustainable.

The applicant proposes to clear native vegetation from the site and remove 3-4 metres of topsoil and underlying substrate. Prolonged exposure of soils and substrate to the elements may lead to land degradation through water transport which may impact water quality in the local area.

The vegetation within the application area is revegetated vegetation undergoing ecological succession. Assessment of the ecological function of the vegetation, and its ability to support local water resources is considered in the context of its potential future ecological function.

Conclusion

Based on the above assessment, the proposed clearing will result in the loss of 0.5 hectares of vegetation growing in an environment associated with a wetland, expose soils with high water repellence risk and moderate water erosion risk and may lead to impacts on water quality in the local area.

For the reasons set out above, it is considered that the impacts of the proposed clearing on water environments and resources can be managed by taking steps to minimise the exposure of soils and substrate to the elements through revegetation and rehabilitation of the application area.

Conditions

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

- Revegetation: revegetation of the application area to mitigate the loss of wetland vegetation and for soil stabilisation.

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

The application area is mapped within the Bunbury Groundwater Area, proclaimed under the RIWI Act. The application area is within the Bunbury Water Reserve Public Drinking Water Source Area. The proposed clearing does not require further approvals relating to these matters as the proposed clearing will not impact on groundwater (estimated to be 30 metres below ground level).

The Shire of Capel did not advise DWER that local government approvals were required, however, they did raise matters which are summarised and addressed below (Shire of Capel, 2021).

Shire of Capel comment	Consideration of comment
<p>This application is at odds with the Shire Council decision made in April 2018: Reasons a. and c. are relevant to the Council’s position on this clearing proposal. OC0404 OFFICER’S RECOMMENDATION – ITEM 14.1/COUNCIL DECISION</p> <p>That Council recommends to the Western Australian Planning Commission that the proposed Structure Plan for Lots 9105, 9076 and 8019 Maidment Parade, Dalyellup be refused in accordance with clause 20 of the Deemed Provisions of Planning and Development (Local Planning Schemes) Regulations 2015 for the following reasons:</p> <p>A) The proposal adversely impacts upon an area of conservation value and does not safeguard existing environmental and biodiversity assets and is therefore inconsistent with State Planning Policy 2.0: Environment and Natural Resources, the South West Region Planning and Infrastructure Framework, the Greater Bunbury Strategy 2013, the Capel Shire Land Use Strategy and Capel Town Planning Scheme No.7;</p> <p>C) It has not been demonstrated that the proposal adequately considers potential land use conflicts and will not expose proposed sensitive land uses and/or zones to adverse impacts from potential contaminants and is therefore inconsistent with State Operational Policy DCP4.2: Planning for Hazards and Safety and Draft SPP4.1 Industrial Interface;</p>	<p>Consideration was given to the purpose for clearing, which is consistent with the existing land use <i>Contaminated Sites Act 2003 (WA)</i> and associated regulations and guidelines.</p> <p>Consideration was given to the applicants’ response that the Shire’s objection related to a 22.51 hectares area and the application area relates to approximately 2.2 per cent of this area (RPS, 2021).</p> <p>The Delegated Officer considered that the applicants’ responsibility to investigate and subsequently remediate a contaminated site is critical to this application that an overall objection to an end land use associated with an overarching Structure Plan is not relevant to the current purpose for clearing. The Shire have other avenues to object to the development of this site, however, remediation of the application area is the focal point of the purpose for clearing under this application.</p> <p>An assessment of the conservation values impacted by the proposed clearing is included under section 3.2.</p>



<p>Flora and Fauna Survey is inadequate</p> <p>It is noted that the flora and fauna survey provided to support this clearing application was conducted on a single day in February (late Summer). The Shire contends that:</p> <p>a. Without trapping, spotlighting or other ongoing seasonal sampling it is impossible to draw any conclusion regarding the presence or absence of rare or endangered fauna, (in particular, nocturnal animals such as Western ringtail possums).</p> <p>b. The nesting season for most native bird species (in particular Black Cockatoos) last from late Winter to early Summer (August to January). Any impact on potential nesting sites (if any) would not be able to be determined from the data gathering period selected by the applicant.</p> <p>c. Similarly, native flora (especially orchids) may only be present for short durations during Spring (September to November).</p>	<p>The environmental impact assessment considered the limitations of the flora and fauna survey undertaken in February 2021. This information was supplemented with information from previous appropriately timed surveys (Ecosystem Solutions, 2020; survey undertaken October 2019) within the application area and spatial information about the site. The information available to the Department is considered sufficient to make an informed assessment of the impacts of the proposed clearing.</p>
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One submission was received in relation to the clearing permit application relating directly to the application of the *Contaminated Sites Act 2003 (WA)* to the proposed clearing. The matters raised are summarised and advice sought from DWER's Contaminated Sites Branch to address these concerns is included below.

Submission comment	Consideration of comment
<p>The submitter asserts that the applicant is undertaking remediation action at the site rather than investigations and is attempting to circumvent the site be classified as a contaminated site.</p>	<p>Advice provided by DWER's Contaminated sites branch notes:</p> <ol style="list-style-type: none"> <li>1. The site historically contained a road that was used by vehicles accessing the adjacent former Waste Residue Disposal Facility (WRDF). Anecdotal information suggests that this former road may have been constructed using treated solid residue (TSR) as part of a trial during the late 1990s. All road base and up to 1 metre of natural soils beneath the road base was removed in 2013.</li> <li>2. Site inspections completed in May 2018 encountered TSR within the [site] in localised areas along the open face of the rehabilitated dunes. Although gamma surveys did not find that radiation levels were above background concentrations, further consideration is required with respect to the risks from TSR. Lot 9101 is therefore classified as "possibly contaminated – investigation required" under the <i>Contaminated Sites Act 2003 (the Act)</i>.</li> <li>3. The Contaminated Sites branch has no objection to the clearing activities proposed on Lot 9109 for the purpose of contamination investigation.</li> <li>4. The department has not yet received a copy of the PSI report, although it is understood that it has been provided to the Contaminated Sites Auditor which in turn will be provided to the department with a Mandatory Auditor's Report (MAR).</li> </ol>

	<p>5. The information held by the department to date suggests possible contamination in a localised area of the site, but it does not currently suggest that there are unacceptable risks to human health, the environment or environmental values from TSR. As a precautionary approach, the department has no objection to the removal of the TSR material and the existing PCIR classification remains appropriate.</p> <p>The applicant accepts that the purpose for clearing may lead to undue confusion and has modified the purpose for clearing to provide greater clarity and comfort that they are following the correct process for remediation of the application area.</p> <p>New clearing purpose:</p> <p>“Clearing for the purpose of remediation actions undertaken in accordance with an approved Remediation Action Plan”</p>
<p>Granting of this clearing permit would lead to remediation of this site without following due procedure, supervision of the contaminated site, a Mandatory Auditors Report, consideration of correct handling procedures to mitigate risk to the community and workers and without following the Department of Mines guideline for managing naturally occurring radioactive material.</p>	<p>In clarifying the process by which this site is to be managed the following advice was provided by Contaminated Sites branch:</p> <p><i>“[Contaminated Sites] understands that the applicant has submitted a revised PSI report, detailed site investigation (DSI) report and remediation action plan (RAP) to the auditor. It is anticipated that should the clearing permit be granted, that localised precautionary removal of TSR will occur and the reports will be provided to the department along with a Mandatory Auditor’s Report (MAR). It is at this stage that reclassification of the site may occur.”</i></p> <p>Consideration is also given to further information provided by the applicant:</p> <p><i>“The site has been subject to contamination investigations to support reclassification of the site. To date the site has been subject to a Preliminary Site Investigation, development of Sampling and Analysis Quality Plan and completion of a Detailed Site Investigation. Following completion of the investigations a Remediation Action Plan was prepared. All stages of investigation have been subject to review by a Western Australian Accredited Contaminated Sites Auditor, and DWER Contaminated Sites Branch has been appraised of the progress. The Remediation Action Plan details all the procedures for handling the material, the requirements for supervision and validation following completion of all works. Investigations to date have confirmed that the material subject to remediation is not radioactive.”</i></p> <p>Based on the information provided, the Delegated Officer considers it is appropriate for the applicant to apply for a clearing permit for the required works at this time and expects the process for assessment and management of a contaminated site will continue to be progressed by the applicant.</p> <p>The applicant accepts that the purpose for clearing may lead to undue confusion and has modified the purpose for clearing to provide greater clarity and</p>

comfort that they are following the correct process for remediation of the application area.

New clearing purpose:  
"Clearing for the purpose of remediation actions undertaken in accordance with an approved Remediation Action Plan"

**End**

## Appendix A. Site characteristics

### A.1 Site characteristics

Characteristic	Details
Local context	<p>The application area is part of an extended tract of coastal native vegetation in the intensive land use zone of Western Australia. It is surrounded by undisturbed and revegetated native vegetation. The proposed clearing area has previously been cleared and comprises revegetated native vegetation.</p> <p>Spatial data indicates the local area (10-kilometre radius from the centre of the area proposed to be cleared) retains approximately 31 per cent of pre-European native vegetation extent.</p>
Ecological linkage	<p>The application area is mapped within a South West Regional Ecological Linkage. Patches within these linkages are the highest level of conservation significance for maintaining the environmental function of local and regional linkages (Molloy et al., 2009).</p>
Conservation areas	<p>The application area does not occur within any conservation area. The closest conservation area is an unnamed reserve approximately 7 kilometres north east of the application area.</p>
Vegetation description	<p>Flora and Fauna surveys (Ecosystem Solutions, 2020 and 2021) indicate the vegetation within the application area consists of revegetated native vegetation. A species list /vegetation description and track maps from survey undertaken in 2020 and 2021 are included in Appendix D.</p> <p>Revegetation planting aims to replicate the pre-European mapped vegetation type(s):</p> <ul style="list-style-type: none"> <li>Quindalup Complex, which is described as coastal dune complex – low closed forest and closed scrub (Hedde et al., 1980)</li> </ul> <p>The mapped vegetation type retains approximately 60.49 per cent of the original extent (Government of Western Australia, 2019). The local area retains approximately 31 percent native vegetation cover, however, as the application area was cleared at the time the above statistics were generated and therefore the vegetation within the application area does not contribute to the statistics above.</p>
Vegetation condition	<p>Vegetation surveys (Ecosystem Solutions, 2020 and 2021) indicate the vegetation within the proposed clearing area is in good (Keighery, 1994) condition, described as:</p> <ul style="list-style-type: none"> <li>Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing. (Keighery, 1994)</li> </ul> <p>The application area is currently transitioning through natural ecological succession indicated by the presence of several <i>Acacia sp.</i> in the vegetation survey (Ecosystem Solutions, 2021) species list. The application area has been revegetated and has been significantly altered, as such the vegetation condition is approximated based on regenerative potential.</p> <p>The full Keighery (1994) condition rating scale is provided in C. A complete species list is available in Appendix D.</p>
Climate and landform	<ul style="list-style-type: none"> <li>Mean annual rainfall: 800 millimetres per annum.</li> <li>Evapotranspiration: 800 millimetres per annum.</li> <li>Groundwater Salinity: 500-1,000 milligrams per litre total dissolved solids.</li> </ul>

Characteristic	Details
	<ul style="list-style-type: none"> <li>The site is situated on a low sloped (25-25 metres above sea level) alluvial plain, shoreline and aeolian deposits and is not subject to frequent flooding (DPIRD, 2021).</li> </ul>
Soil description	The soil is mapped as Quindalup South Qp2 Phase which is described as long walled discrete parabolic dunes with moderate to steep slopes and uniform calcareous sands showing variable depths of surface darkening (Schoknecht et al., 2004)
Land degradation risk	Spatial data maps the application area as having a high level of water repellence risk and moderate wind erosion, water erosion and phosphorus export risk (Department of Primary Industries and Regional Development (DPIRD) (2021)).
Waterbodies	<p>Spatial data maps the application areas a part of the Big Swamp consanguineous wetland suite. This wetland suite is associated with basins with ancestral fluvial and possibly estuarine phases, and flats resulting from fluvial and estuarine processes.</p> <p>The application area is approximately 450 metres from the Western Australian coastline.</p>
Hydrogeography	The application area is mapped within the Bunbury Groundwater Area, proclaimed under the RIWI Act. The application area is within the Bunbury Water Reserve Public Drinking Water Source Area.
Flora	<p>Spatial data identifies 68 records of 29 different threatened or priority flora within the local area (10 kilometre radius). Of these records, the closest is a mapped population of <i>Caladenia speciosa</i> approximately 2.2 kilometres east of the application area.</p> <p>Of the locally recorded threatened and priority flora, none are mapped within the same soil and vegetation type as the application area. Further, the application area is a rehabilitation site; no threatened or priority flora were planted/transplanted as part of the rehabilitation and natural recruitment of any threatened or priority flora is unlikely.</p> <p>Surveys of the application area did not identify any conservation significant flora or suitable habitat for conservation significant flora within the application area (Ecosystem Solutions, 2020 and 2021).</p>
Ecological communities	<p>Spatial data identifies 10 different threatened or priority ecological communities within the local area (10 kilometre radius of the application area).</p> <p>Of these, the most common is the Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region (Priority 3 PEC; 645 occurrences) and Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain (Priority 3 PEC; 78 occurrences). Both priority ecological communities are recorded within 500 metres of the application area.</p> <p>The application area is a rehabilitation site and is still transitioning through successional species and is therefore unlikely to represent its final assemblage or that of any known threatened or priority ecological community.</p>
Fauna	<p>Spatial data identifies 2,447 fauna records of 53 different species in local area. Of these nine are aquatic species and 31 are coastal dominate avifauna with large home ranges.</p> <p>Of the remaining 13 threatened or priority fauna species recorded in the local area, the most frequently recorded is the <i>Pseudocheirus occidentalis</i> (Western Ringtail Possum) with 1,996 records in the local area, the closest of which is 150 metres east of the application area.</p>



## A.2 Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (m)	Are surveys adequate to identify? [Y, N, N/A]
<i>Pseudocheirus occidentalis</i> (Western ringtail possum, ngwayir)	CR	Y	150	Y
<i>Calyptorhynchus baudinii</i> (Baudin's cockatoo)	EN	Y	2320	Y
<i>Calyptorhynchus latirostris</i> (Carnaby's cockatoo)	EN	Y	2210	Y
<i>Calyptorhynchus sp.</i> 'white-tailed black cockatoo' (White-tailed black cockatoo)	EN	Y	2315	Y
<i>Calyptorhynchus banksii naso</i> (forest red-tailed black cockatoo)	VU	Y	2510	Y
<i>Setonix brachyurus</i> (quokka)	VU	Y	3290	Y
<i>Isoodon fusciventer</i> (Quenda, southwestern brown bandicoot)	P4	Y	665	Y
<i>Phascogale tapoatafa wambenger</i> (South-western brush-tailed phascogale, wambenger)	CD	Y	770	Y
<i>Idiosoma sigillatum</i> (Swan Coastal Plain shield-backed trapdoor spider)	P3	Y	890	N
<i>Notamacropus Irma</i> (western brush wallaby)	P4	Y	1650	Y

## A.3 Ecological community analysis table

Community name	Conservation status	Suitable vegetation type? [Y/N]	Distance of closest record to application area (m)	Number of known records (local area)	Are surveys adequate to identify? [Y, N, N/A]
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	P3	N	<500	645	Y
Tuart ( <i>Eucalyptus gomphocephala</i> ) woodlands and forests of the Swan Coastal Plain	P3	Y	<500	78	Y
<i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain (floristic community type 3c as originally described in in Gibson et al. (1994))	CR	N	N/A	3	Y
<i>Corymbia calophylla</i> woodlands on heavy soils of the southern Swan Coastal	VU	N	N/A	1	Y

Community name	Conservation status	Suitable vegetation type? [Y/N]	Distance of closest record to application area (m)	Number of known records (local area)	Are surveys adequate to identify? [Y, N, N/A]
Plain (floristic community type 1b as originally described in Gibson et al. (1994))					
Dense shrublands on clay flats (floristic community type 9 as originally described in Gibson et al. (1994))	VU	N	N/A	2	Y
Herb rich saline shrublands in clay pans (floristic community type 7 as originally described in Gibson et al. (1994))	VU	N	N/A	2	Y
Herb rich shrublands in clay pans (floristic community type 8 as originally described in Gibson et al. (1994))	Vu	N	N/A	4	Y
Sedgeland in Holocene dune swales of the southern Swan Coastal Plain (floristic community type 19 as originally described in in Gibson et al. (1994))	CR	N	N/A	2	Y
Shrublands on calcareous silts of the Swan Coastal Plain (floristic community type 18 as originally described in in Gibson et al. (1994))	VU	N	N/A	1	Y
Shrublands on calcareous silts of the Swan Coastal Plain (floristic community type 18 as originally described in in Gibson et al. (1994))	EN	N	N/A	1	Y

## Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
<b>Environmental value: biological values</b>		
<p><u>Principle (a):</u> <i>“Native vegetation should not be cleared if it comprises a high level of biodiversity.”</i></p> <p><u>Assessment:</u></p> <p>The application area does not contain values which are considered to indicate a high level of biodiversity. The vegetation within the application area is not representative of any conservation significant ecological communities and does not provide critical habitat for conservation significant fauna. The application area is not likely to provide habitat for threatened or priority flora species.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain critical or significant habitat for black cockatoos or other conservation significant fauna.</p> <p>The area proposed to be cleared includes habitat for <i>Pseudocheirus occidentalis</i> (Western ringtail possum, ngwayir) and is part of a mapped ecological linkage.</p>	May be at variance	Yes Refer to Section 3.2.1, above.
<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>The area proposed to be cleared does not contain habitat for threatened flora species listed under the BC Act.</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 proposed clearing area does not contain species composition that is indicative of a TEC listed by the Western Australian Minister for Environment.</p>	Not likely to be at variance	No
<b>Environmental value: significant remnant vegetation and conservation areas</b>		
<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 association and native vegetation in the local area is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001).</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>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>		
<b>Environmental value: land and water resources</b>		
<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>The area proposed to be cleared is mapped as part of the Big Swamp consanguineous wetland suite, the proposed clearing may impact on or off-site hydrology and water quality and will impact native vegetation growing in an environment associated with this wetland suite.</p>	At variance	Yes Refer to Section 3.2.2, above.
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils are highly susceptible to water repellence and moderately susceptible to wind erosion, water erosion and phosphorus export.</p> <p>Noting the extent of the application area and the regenerative stage of the vegetation, the proposed clearing may have an appreciable, but localised impact on land degradation.</p>	May be at variance	Yes Refer to Section 3.2.2, above.
<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>Taking into account the extent and condition of the vegetation proposed to be cleared and considering the area proposed to be cleared is a mapped wetland, has a high water repellence risk and moderate phosphorus export risk, is within the Bunbury Groundwater Area, proclaimed under the RIWI Act and the Bunbury Water Reserve Public Drinking Water Source Area the impacts of the proposed clearing surface or ground water quality may be notable.</p>	May be at variance	Yes Refer to Section 3.2.2, above.
<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.</p> <p>The application area occurs in a wetland and the extent of the proposed clearing is not likely to contribute to increased incidence or intensity of flooding that is naturally experienced within the area.</p>	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. Biological survey information excerpts

Family	Genus	Species
APOCYNACEAE	<i>Alyxia</i>	<i>buxifolia</i>
ASPARAGACEAE	<i>Acanthocarpus</i>	<i>preissii</i>
ASPHODELACEAE	* <i>Trachyandra</i>	<i>divaricata</i>
ASTERACEAE	<i>Olearia</i>	<i>axillaris</i>
CHENOPODIACEAE	<i>Rhagodia</i>	<i>baccata</i>
CYPERACEAE	<i>Ficinia</i>	<i>nodosa</i>
CYPERACEAE	<i>Lepidosperma</i>	<i>sp.</i>
CYPERACEAE	<i>Lepidosperma</i>	<i>sp. wide</i>
DILLENiaceae	<i>Hibbertia</i>	<i>cuneiformis</i>
FABACEAE	<i>Acacia</i>	<i>cochlearis</i>
FABACEAE	<i>Acacia</i>	<i>cyclops</i>
FABACEAE	<i>Acacia</i>	<i>rostellifera</i>
FABACEAE	<i>Acacia</i>	<i>saligna</i>
IRIDACEAE	* <i>Romulea</i>	<i>rosea</i>
MYRTACEAE	<i>Agonis</i>	<i>flexuosa</i>
MYRTACEAE	<i>Eucalyptus</i>	<i>gomphocephala</i>
PHYLLANTHACEAE	<i>Phyllanthus</i>	<i>calycinus</i>
POACEAE	* <i>Avena</i>	<i>sp.</i>
POACEAE	* <i>Briza</i>	<i>maxima</i>
POACEAE	* <i>Cynodon</i>	<i>dactylon</i>
POACEAE	* <i>Lagurus</i>	<i>ovatus</i>
RUTACEAE	<i>Diplolaena</i>	<i>dampieri</i>

Fig 2: Area proposed to be cleared species list (Ecosystem Solutions, 2021)



Fig 3: Survey effort during February 2021 survey of application area (Ecosystem Solutions, 2021)



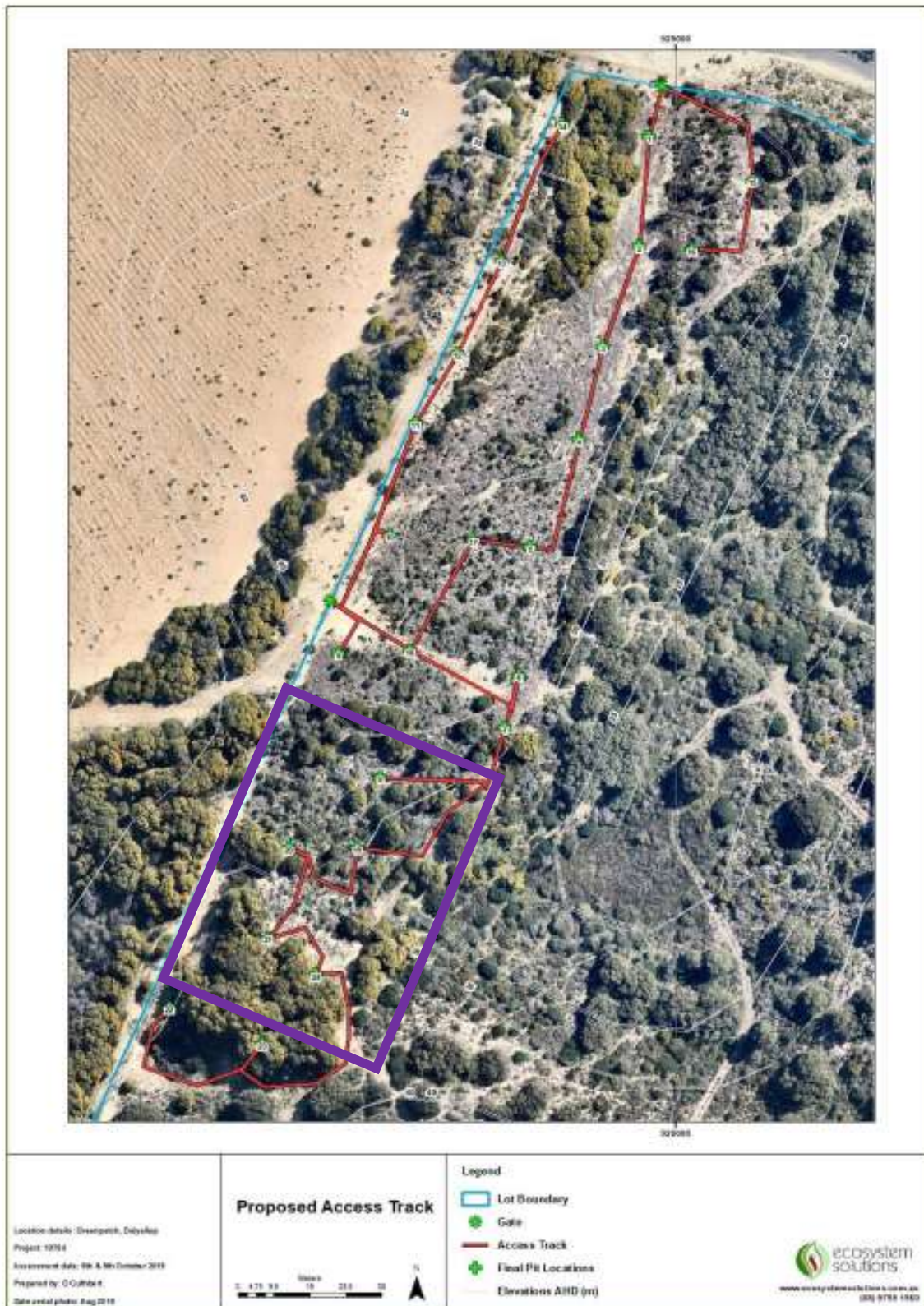


Figure 3 Access Track Location at Greenpatch, Dalyellup

Fig 4: Pit locations surveyed under CPS 8609/1 (Ecosystem Solutions, 2020)

\*\*Added: Purple box showing the location of clearing permit application CPS 9265/1

Vegetation description and photographs of spring survey effort for CPS 8609/1 (Ecosystem Solutions, 2020).

\*Note that the vegetation in the background of the below photographs make up part of the vegetation proposed to be cleared under CPS 9265/1

Test Pit Number	TP08	
Proposed Location	370731 E	6304185 N
Determined Location	370742.6 E	6304182.0 N
Layer	Percentage Cover	Species
> 2 m	< 2%	<i>Acacia saligna</i>
1-2 m	< 2%	<i>Acacia saligna</i>
< 1 m	2 - 10%	<i>Diplolaena dampieri</i> , * <i>Trachyandra divaricata</i> , <i>Olearia axillaris</i> , <i>Acanthocarpus preissii</i> , * <i>Ehrharta longiflora</i> , * <i>Euphorbia paralias</i> , <i>Dodonaea aptera</i>



Test Pit Number	TP19	
Proposed Location	370740 E	6304162 N
Determined Location	370736.8 E	6304163.3 N
Layer	Percentage Cover	Species
1 - 2 m	< 2%	<i>Olearia axillaris</i> , <i>Diplolaena dampieri</i> , <i>Dodonaea aptera</i> , <i>Acacia rostellifera</i>
> 1 m	2 - 10%	<i>Diplolaena dampieri</i> , * <i>Trachyandra divaricata</i> , * <i>Watsonia sp.</i> , * <i>Euphorbia paralias</i> , * <i>Trifolium sp.</i>

Test Pit Number	TP20	
Proposed Location	3707715 E	6304174 N
Determined Location	370719.4 E	6304162.9 N
Layer	Percentage Cover	Species
> 2 m	< 2%	<i>Acacia rostellifera</i>
1-2 m	2 - 10%	<i>Diplolaena dampieri</i>
< 1 m	2 - 10%	<i>Diplolaena dampieri</i> , * <i>Trachyandra divaricata</i> , <i>Olearia axillaris</i> , * <i>Euphorbia paralias</i> , <i>Acanthocarpus preissii</i>



Test Pit Number	TP21	
Proposed Location	370708 E	6304137 N
Determined Location	370715.9 E	6304138.8 N
Layer	Percentage Cover	Species
< 1 m	10 - 30%	* <i>Trachyandra divaricata</i> , * <i>Euphorbia paralias</i> , * <i>Medicago polymorpha</i>

Notes - *Agonis flexuosa* is located nearby, but can be avoided

Test Pit Number	TP24	
Proposed Location	370727 E	6304124 N
Determined Location	370728.4 E	6304129.0 N
Layer	Percentage Cover	Species
< 1 m	< 2 %	* <i>Trachyantra divaricata</i> , * <i>Euphorbia paralias</i> , * <i>Brassica</i> spp.

Notes - Some overhanging *Acacia rostellifera*, not within the 3m x 3 m assessment area, and can be avoided.

## Appendix E. Sources of information

### E.1 GIS databases

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

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

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)



- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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